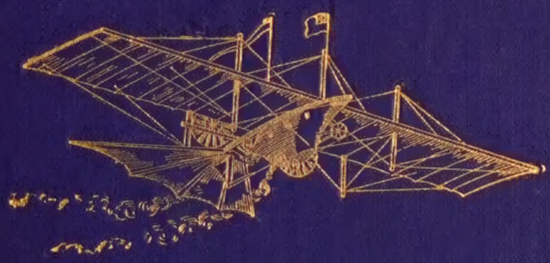
AERONAUTICAL PRINTS & DRAWINGS



W. LOCKWOOD MARSH

81 Slater

25

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AERONAUTICAL PRINTS AND DRAWINGS

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AERONAUTICAL PRINTS & DRAWINGS

WITH TEXT BY

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AND FOREWORD BY

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FOREWORD

It has been said that the romance of the first aeroplane flights far exceeds the romance of the first balloon voyages, but anyone who reads Colonel Lockwood Marsh's account of the early aeronauts will certainly have doubts as to the truth of the saying. Difficult as it now is to recall the wonder of the first flights of Wilbur Wright at Le Mans, it requires almost superhuman imagination to visualise the awestruck amazement with which all waiting Paris must have seen the captive balloon of Montgolfier rising above the walls of the Reveillon Garden with the intrepid Pilâtre in the gallery. This is one of the many scenes illustrated in this book which enable us in some degree to reconstruct the past history of aeronautics. It is one of the minor disadvantages of progress that the cold eye of the camera has superseded the more sympathetic hand of the artist and engraver, and though there is, of course, a gain in accuracy of record for the future historian, one wonders whether this is not more than outweighed by the loss in artistry. Who, for example, would forego Bartolozzi's charming portrait group of *The Three Favourite Aerial Travellers* for the sake of the prosaic fact that Lunardi did not take part in the ascent!

That " there is nothing new under the Sun " is an adage which has no more truthful application than in the realms of Discovery and Invention. When Bleriot landed in the grounds of Dover Castle there must have been few who realised that he had but followed in the reverse direction the course set by Blanchard and Jeffreys over a century before. Another instance of the wisdom of the maxim is given here by the reproductions from Meusnier's volume of drawings in which he not only, to a great extent, forecast the modern airship but actually anticipated the need for mooring out in the open.

I think this book will be found to fill a real gap, not merely in aeronautics but indeed in the literature of art. Aeronautical prints were after all a very definite manifestation of the interest of the artist in a new subject; and just as the early prints of locomotives are now much sought after so will the ballooning print increasingly become the quest of the collector. The subject is one which has been entirely neglected in this country up to the present, and only covered to a very partial extent elsewhere; and I think that not only the aeronautical enthusiast but all the wide circle of general readers who are interested in art and its history will owe a real debt of gratitude to the author and publishers of this work.

F. H. SYKES.

A LIST OF THE ILLUSTRATIONS IN THIS VOLUME

giving the full text of inscriptions, imprints, etc., appearing on the originals. Owing to the length of, and difficulty of satisfactorily reproducing, certain of the inscriptions, it has been deemed preferable to give the particulars in this form rather than to print them under the plates.

Frontispiece. James Sadler Ascending from Nottingham. 1813

The ASCENT of Mr. SADLER, the celebrated BRITISH AERONAUT at NOTTINGHAM. November 1st, 1813. Drawn by R. Bonnington.
Published January 17, 1814, by R. Bonnington, Nottingham.

Plate

1 An Early Portuguese Project. 1709

(For inscription see illustration).

2 Blanchard's Flying Machine—A Forecast. 1782

AUX INCREDULES DE PARIS

En l'An Mille sept cents octante plus et moins
Attendres dans le Ciel étrange Phœnomène
Grand Ville aux àbois qui force gens promène.

Tous jusques aux Marmots veulent etre témoins
Plus de Guerre n'est bruit, et quoiqu'on en espere,
Chacqun d'iceux sera dupe de la Chimère.
Nostradamus.

l'Astrologue Provencal ne semble t'il pas avoir clairement designé dans cette prèdiction, le Vaisseau Volant du celèbre Mr. Blanchard?/
Se vend à Paris chez Le Noir Md. d'Etampes au Louvre et rue du Coq. St. Honoré.

3 Joseph Michel Montgolfier.

Jh. Ml. Montgolfier, Membre de la Légion d'Honneur,/ de l'Institut de France, de plusieurs autres sociétés savantes, du Bureau/ Consultatif du Ministre pour les Arts; Démonstrateur au Conservre./ des Arts-et-Métiers de Paris; Inventeur de l'Aërostat, du/ Bélier-hydraulique, &c., &c., &c./ Né à Annonay, Départementde l'Ardêche, en 1740; Moru en 1810./ Non ebur neque Aureum . . . At fides et ingeni./ Benigna vena est . . . *Hor.*/

4 Jacques Etienne Montgolfier.

(For inscription see illustration).

5 *(a)* Montgolfier and Charles Balloons. 1783

(No inscription).

(b) The First Balloon Ascent from Annonay. 1783

(Above) VUE D'ANNONAY en VIRARAIS./ *(Below)* DEDIÉE A. MM. DE MONTGOLFIER Freres./ L'Origine des Aerostats, ou la premiere de toutes les experience, faite à Anonnay le jeudi 5 juin 1783./ Les Mrs. Etienne et Joseph Montgolfier inventeurs de cette étonnante découverte, inviterent l'assemblée/ des Etats particuliers de Vivarais, et en leur présence ils enleverent sur la place Publique un Ballon de forme Sphé-/ rique, portant 100 pds. de circonférence retenu sur un chassi de bois de 16 pds. de surface construit en toile doublée/ de papier, cousues sur un réseau de ficelle fixé toiles: les differentes pieces de la machine étoient assemblée/ par des simples Boutonieres arretées par des Boutons. A peine le Signal fut-il donné, qu'elle partit avec rapidité/ et en moins de 10 minutes elle fut a 1000 toises d'élévation, et décrit alors une ligne horizontale de 7200 pds. restant/ 10 minutes en l'air, mais la perdition du Gaz par les boutonieres la fit redescendre, sa chute fut si legere qu'elle/ ne brisa ni les Ceps, ni les echalas de la Vigne, sur lesquels elle se reposa.
a Paris chez Vachez Md. d'Estampes, Quay de Gevres a l'Esperance. A.P.D.R.

6 **The First Hydrogen Balloon.** 1783

EXPÉRIENCE de la MACHINE ARÉOSTATIQUE de Mrs. de Montgolfier, d'Anonai en Vivarais./ Reppetée à Paris le 27 Aoust. 1783. au Champ de Mars, avec un Balon de Taffetas enduit de Gomme élastique, de 36 pieds 6 pounces de Circonféerence./ Ce Balon plein d'Air Inflamable a été éxécuté par Mrs. Robert, en vertu d'une Souscription Nationale sous la direction de Mr. Faujas de Saint Fond.
Se vend à Paris chez Le Noir Md. d'Etampes au Louvre et rue du Coq. St. Honoré.

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Se vend à Paris chez Le Noir Md. d'Etampes au Louvre et rue du Coq. St. Honoré.

8 **The Landing of the First Hydrogen Balloon.** 1783

A MESSIEURS LES SOUSCRIPTEURS./ ALLARME GÉNÉRALE DES HABITANTS DE GONESSE occasionée par la chute du Ballon Aréostatique de Mr. de Montgolfier./ Ce ballon, de 38 pieds de circonference, fait en Taffetas enduit de gomme Elastique et plein d'Air Inflamable, tiré du Fer au moyen de l'acide Vitriolique, s'eleva de lui même au/ Champ de Mars à Paris, le 27 Aoust 1783, à 5 heures du soir en présence du plus de 300 mille personnes. La pluie d'Orage qui survint dans l'instant où on l'abandonna, ne l'empê-/ cha pas de s'élever avec un mouvt. accélleré jusqu'au delà des Nuës. On présume qu'il fut porté à plus de vingt mille pieds de hauteur ou il creva par la réaction du Gaz Inflam-/ mable sur l'air Atmosphérique. Il tomba à 5 heures 3 quarts près de Gonesse à 10 milles du Champ de Mars. Les Habitants accoururent en foule, et deux Moines leurs ayant assuré que c'étoit la peau d'un Animal monstreux, ils l'assaillirent à coups de Pierres, de Fourches et de Fléaux; le Curé du lieu fut obligé de se transporter près du Ballon pour/ rassurer ses Paroissiens épouventés. Il attacherent enfin à la queue d'un Cheval l'Instrument de la plus belle expérience de Physique qui ait jamais été fait, et le trainerent à plus/ de mille toises à travers Champs./
Se vend à Paris chez Le Noir Md. Fournisseurs des Estampes du Cabinet du Roi, demeurant au Louvre.

9 **The Versailles "Animal" Ascent.** 1783

A MONSIEUR de FAUJAS de St. FOND, de PLUSIEURS ACCADÉMIES./ EXPERIENCE AEROSTATIQUE Faite à Versailles le 19 Septembre 1783. en présence de leurs Majestés, de la Famille Royale et de plus de 130. milles Spectateurs Par Mrs. de Montgolfier/ avec un Ballon de 57 Pieds de hateur, sur 41. de diamêtre. / Cette superbe machine a fond d'Azur, avec le Chiffre du Roi et divers Ornements en couleurs d'Or, déplaçoit 37500 pieds cubes d'Air Atmospherique, pésant 3192 livres mais la/ vapeur dont on la remplissoit, pésant moitié moin que l'Air commun, il restoit une rupture déquilibre de 1596 livres sur quoi la machine et la cage ou étoit un Mouton un/ Coq et un Canard, pésant ensemble 900 et ce poid devant etre soustrait, le Ballon auroit pu enlever encore 696 livres. A une heure un coup de Canon annonça qu'on alloit/ remplir la machine, onze minuttes àprès, un second coup apprit quelle étoit plaine et un troisième quelle alloit partir, elle s'éleva alors majestuesement à une grand hauteur, a la/ surprise des Spectateurs et au bruit des acclamations public. Elle se soutent quelque tems en équilibre et descendit lentement huit minuttes àprès. à 1700 toises de distance du point de son/ départ, dans le Bois de Vaucresson Carefour Maréchal. le Mouton le Coq et le Canard n'éprouverent pas la plus légère incommodité.
A Paris Chez Le Noir Md. Fournisseur du Cabinet des Estampes du Roi demeurant au Louvre.

10 A Captive Ascent from the Reveillon Gardens. 1783

VUE ET PERSPECTIVE DU JARDIN DE MR. REVEILLON FABRIQUANT DE PAPIER./ Fauxbourg St. Antoine, à l'ancien Hotel de Titon, où se sont faites les expériences de la Machine Aërostatique de MM. Montgolfier freres, dans le/ courant de l'Eté, en l'année 1783 à la satisfaction d'un concours immense d'amateurs./ DEDIÉE A MRS. LES PHYSICIENS
Dessine d'après nature par Desrais.
A Paris chez Esnauts et Rapilly, rue St. Jacques, à la Ville de Coutances.

11 The First Aeronaut.

F. PILATRE DE ROZIER./ Premier Navigateur Aërien/ et Pensionaire du Roy.
Pujos Delineavit ad vivum. Legrand G.
et se trouve chez Mr. Pujos Peintre Quai Pellitier présla Greve.

12 The First Aerial Voyage. 1783

(Above) Confusion des mauvais plaisans./ *(Below)* EXPÉRIENCE de la MACHINE AERONAUTIQUE de M. MONTGOLFIER au CHAT. de la MUETTE, le 21 9bre 1783./ Le Ciel étoit couvert en partie de nuages : à midi 8 min. on a annonce en tirant une boëte, qu'on alloit remplir la Machine : 8 min. après, elle etoit prete à/ partir. Mr. le Marquis d'Arlandes et M. Pilatre du Rozier se sontmis dans la galerie. On l'a d'abord laisse enlever par forme d'essais en la soutenant/ avec des cordes, mais s'etant dirigée sur une des allées du Jardin, elle a souffert plusieurs déchirures qui ont été réparees en moins de 2 heures./ A 1 heure 54 min. elle est partie portant les memes personnes : étant environ a 250 pieds de haut, ces M.M. ont salué les Spectateurs en baissant le/ Chapeau. Ce spectacle étoit majestueux et attendrissant. La Machine amonté à trois mille pieds environ. Tout Paris à pu la voir traversant la Seine/ et passant entre l'Ecole Militaire et les Invalides. Les Voyageurs voulant borner leurs course, ont laissé descendre la Machine, mais le vent les di-/ rigeant sur les maisons de la rue de Seve Faub, St. Germ. ils se sont relevés pour traverser Paris, ensuite ils sont descendus tranquilement dans la/ Campagne du nouveau Boulevard. En 25 minutes ils ont parcouru près de 2 lieues sans eprouver aucune incommodite./ La Machine a 70 pieds de haut 46 de diamètre, contenant 6000 pieds cubes; elle est de toile de coton gomeé. Le poids qu'elle a enlevé est de 1700./

13 Professor Argand demonstrating before George III at Windsor. 1783

(a) A PROFESSOR FILLING, & EXPLAINING to AN AUDIENCE, THE NATURE of a BALLOON. Published as the Act directs Jan. 20th 1784 by J. Basire, No. 16 St. John's Lane, Clerkenwell.

(b) THE KING, QUEEN, &C., VIEWING A BALOON LET OFF IN THE GARDEN OF WINDSOR CASTLE.
Published as the Act directs Jan. 20th, 1784 by J. Basire, No. 16 St. John's Lane, Clerkenwell.

14 J. A. C. Charles.

15 The Ascent of Charles and Robert. 1783

(Above) VON VOYAGE. *(Below)* EXPÉRIENCES DU GLOBE AEROSTATIQUE DE MM. CHARLES ET ROBERTS, au Jardin des Thuilleries./ le 1er Décembre 1783./ Le meme jour à trois heures trois quarts après midi, la Machine Aërostatique est descendue dans une prairie entre Nesle et Hédouville, à/ 9 lieues de Paris. Le Procès Verbal en a été fait dans la Machine par M. Charles, et signé par MM. Charles, Robert, Jean Burgaret Curé de/ Nesle, Charles Philippet Curé de Frénoy, Thomas Hutin Syndic de cette Paroisse et l'Heureux Curé d'Hédouville. Mgr. le Duc de Chartres et Mr./ de Fitz James qui sont arrivés un quart d'heure après ont honoré ce Procès Verbal de leur Signature. A quatre heures un quart Mr. Charles/ a remonté dans la

Machine et a continué seul sa route environ une lieue et demie dans l'espace de 35 minutes: il est descendu dans/ des friches d'où ayant été apperçu par un Gentilhomme Anglois, il l'engagea à passer la nuit chez lui; il revint le lendemain à Paris./ Il a rapporté que la Machine Aerostatique n'avoit souffert aucun accident./
A Paris chez Esnauts et Rapilly, rue St. Jacques, à la Ville de Coutances.

16 Charles and Robert Leaving the Tuilleries. 1783

GLOBE AEROSTATIQUE DE MRS. CHARLES ET ROBERT/ AU MOMENT de LEURS DÉPART du JARDIN DES THUILLERIES le PREMIER DECEMBRE 1783.
A paris chés Henauts et Rapilly, Mds. d'Etampes, Rue St. Jacques à la Ville de Coutances.

17 Nesle. Charles Re-ascending Alone. 1783

GLOBE AEROSTATIQUE./ DÉDIÉ A MONSIEUR CHARLES./ Cette Machine est representé ici s'élevant pour la seconde fois au milieu de la Prairie de Nesle, ou il venoit de descendre, accompagné de Mr. Robert et en Présence/ de Mgr. le Duc de Chartres, Mr. le Duc de Fitz-James, et de Mr. Farer Gentilhomme Anglois, Mr. Robert Présente le Procès Verbal à signer aux Curés d'Hedouville, et de Nesle./ Par son très Humble et très Obeissant Serviteur. Basset. Desrais Del. Denis Sculp.
A Paris chez Basset rue St. Jacques au coin de celle des Mathurins.

18 The Return of the Charles and Robert Balloon. 1783

LE RETOUR DU GLOBE AEROSTATIQUE, à Paris le mardi 2 Decembre 1783 sur les 5 heures et demie du Soir Escorté/ par plusieurs personnes de distinction et aux Acclamation du peuple cette experience couvre d'une Gloire immortelle Mrs. de/ Montgolfier et Mrs. Charles et Robert qui de Concert travaillent a tirer de cette découverte toute l'utilité dont elle paroit suceptible/ dememe que Mrs. le Marquis Darlandes et Pilatre du Rozier qui les premiers ont montés dans la machine partie du Chat. de la Muette le 21 Nov. 1783.
a Paris chez Basset, rue St. Jacques.

19 *(a)* The First Cylindrical Balloon

(Above) Vue du Tapis vert, prise audessus de l'Orangerie à St. Cloud. *(Below)* EXPÉRIENCE ARÉOSTATIQUE DE MRS. ROBERT./ Le plus grand nombre des Spectateurs, qui avoit passé la nuit au moment de l'arriver du/ Balloon, dans la piece dite des 24 jets, les aplaudissements furent universels, jamais en effetrien de plus/ majestueux ne s'etoit présenté sous les yeux de Public, deux cordes qui servoient a retenir le Ballon,/ étoient tenues par deux jeunes Femmes, qui étoient celles de deux freres Robert. Ce Balon portant 52/ pieds de longeur sur 32 de diametre, s'éleva avec lenteur à huitheures du matin le 15 Juillet 1784, les Voya-/ geurs au nombre de 4, savoir Mr. le Duc de Chartres, les deux freres Robert, et Mr. phisicien./ Le Ballon ayant tenu l'air troi-quart d'heure, prit à terre à 30 pieds de l'etang de la garene dans le/ Parc de Meudon, la décente quoique rapide se fit sans aucum accident. Voy le Journal du 16 Juillet.
A Paris chez Vachez, Quai de Gevre, à l'Espérance.

(b) The Second Cylindrical Balloon

(Above) [VUE DES TUILERIES PRISE DE LA GRANDE ALLÉE.]/ *(Below)* DÉDIE A MM. ROBERT./ Troisieme expérience Aréostatique des MM. Robert, faite aux Tui-/ leries le 19 Septembre 1784 à midi precis, accompagnes de Mr./ Colin Hulin leur Beau-frere. Sont desecndus doucement dans la Plaine/ de Beuvry, distance de 50 lieues de Paris, prés du Chateau du meme nom apartenant/ à Mr. le Prince de Ghistelles-Richebourg grand d'Espagne de la premiere classe. *(Scroll initial " R " in the centre).*
A Paris chezVachez , Md. d' Estampes Quai de Gevres à l'Espérance.

x

20 “ Le Flesselle ” Over Lyons. 1784

(Above) VUE GÉNÉRAL DE LYON, PRISE DU HAUT DU FAUBORG DE LA GUILLOTIERE. / *(Below)* MACHINE AEROSTATIQUE. / De Cent vingt pieds de hauteur sur cent de Diametre, construite à Lyon, avec une envelope formée trois papiers entre deux Canevas, et un filet qui enveloppoit le tour et retenoit la Gallerie/ sur la surface étoient représenté diverse alégorie. Cette Machine faite sous la direction de M. de Montgolfier l'ainé envertu d'une souscription, c'est élevée le 19. Janvier 1784. à près de deux mille cinq/ cent pieds de hauteur : portant avec elle M. de Montgolfier l'ainé, M. Pilates de Rosier, M. Le Prince Charles Deligne, M. le Comte de la Porte d'Anglefort, M. le Comte de Laurencin,/ M. le Comte de Dampiere et M. Fontaine de Lyon zele Coopérateur. Sa direction fut verticale et parvint à sa plus grande hauteur en 13 minutes de tems, alors s'étant fait une déchirurent a l'enveloppe, cette/ Machine resta un instant stationnaire, et descendit ensuite assez promtement dans une prairie aux environs de Lyon, sans qu'aucun des nouveaux argonautes eut éprouvé la moindre incommodité; Jamais/ scéne ne fut plus touchante que l'accueil et les acclamations qui furent faites aux voyageurs, et sur tou les embrassements réiterées du Prince de Ligne et de son Fils. le soir a la Commedie il fut joué une/ Cantade a l'honneur de M. de Montgolfier qui fut couronné lui et ses compagnons de Voyage, dans la Loge l'intendance, tous les habitans de la Ville de Lyon et plus de trente mille Etrangers quiy étoient/ venus de toute parts furent témoins de cette belle expérience. /
Se vend à Paris chez le Noir Md. Fournisseur du Cabinet des Estampes du Roi, Demeurent au Louvre.

21 “ The Elopement.” 1784

LA PROPHÉTIE ACCOMPLI ou l'enlévement Aerien. / Une lettre de Schonhove en Hollande nous apprend que l'Enlevément annoncé par l'Almanach du jour/ vient effectivement d'avoir lieu dans celte Ville, ainsi qu'il est ici représenté et pris sur le lieu meme. /
A Paris chez l'Auteur Rue des Prouvaires au Caffé des Prouvaires.

22 “ The Capture.” 1874

LA PROPHÉTIE ACCOMPLIE où suite de enlévement Aerien. / Le Pere averti, atteint avec un autre ballon celui du jeune Phisicien ravisseur de sa fille audessus de/ Worcum; là il se livre un combat sanglant, dans lequel deux compagnons du malheureux Pere sont tués.
A Paris chez l'Auteur Rue des Prouvaires au Caffé des Prouvaires.

23 Meusnier's Airship. 1784

(No inscription).

24 Andreani's Balloon. 1784

(a) DISCESA/ DELLA MACCHINA AEROSTATICA/ in uno campo/ distante un quarto di miglio oal sito ove s'innalzo.

(b) Innalzamento della Macchina Aerostatica.
From “ Opusculi di Agostino Gerli.”

25 Fan Showing Blanchard's Balloon. 1784

26 Blanchard's Balloon. 1784
(For inscription see illustration).

27 L'Aérostat De Dijon. 1784

EXPÉRIENCE AEROSTATIQUE. / Faite à Dijon le 25, avril 1784. Ce Ballon parti à 5 heures du soir; est arrivé a Magni-/ les-Auxone, à 6 heures 25 minutes; ayant parcouru

l'Atmosphére, d'environ 2044 toises/ ou une petite lieues de France; it étoit montée par Mr. l'Abbe Berteau/ et Mr. Harvaux, à la satisfaction da public
a Paris chez Crepy rue S. Jacques pres la rue de la parcheminerie.

28 L'Aérostat Le Bordelais. 1784
(For inscription see illustration).

29 The First Ascent From Strasbourg. 1784

Expérience Aerostatique./ du Sr. Adorne, premiers éssais faits à la Citadelle de Strasbourg au mois de/ Mars 1784, avec un Ballon de 80 pieds de hauteur sur 156 de Circonférence/ deplacant 113,310 pieds cubes d'air Atmosphérique du poids de 26½ Quintaux en tout. G. O. Enslen del.

30 The First Lady Aeronaut. 1784

MONTGOLFIERE LA GUSTAVE/ DÉDIÉE A SA MAJESTE GUSTAVE III ROY DE SUEDE/ Cet Aerostat presenté à Sa Majesté Le Roy de Suede, par Le Corps Municipal de la Ville de Lyon, a été entrepris par une Société de Négocians de cette Ville, sous la direction de Mr. Le Comte de Laurencin,/ et de Mr. Treille, il a été construit par Mr. Fleurant, qui l'a monté le 4. Juin 1784, avec Made. Tible. Ascension 2400 Toises, Descente à la montée de Balmont route de Paris, après avoir Plané ¾ d'heure audessus de la Ville. Dessine et Gravé par Ch. Boily.
Par son très humble et tres respectueux Serviteur, Boily.
(Shield in centre).

31 Nantes. "Le Suffren." 1784

VUE PERSPECTIVE DE L'AEROSTAT LE SUFFREN/ et des appareils employés pour l'elever/ de l'Hospital des enfans Orphelins/ et le remplir, lequel a été lancé du Jardin/ de Nantes, le 14. Juin 1784./ Dedié à Messieurs les Maire, Echevins et Procureur du Roi Sindic de la Ville et Communté. de Nantes./ (Scel des Maire Et Echevins de Nantes)./ Cet Aerostat de 30 pieds 4 p. de diametre, fait de Taffetas verni, a été construit et dirigé ainsi que tous ses appareils, par M. l'Eveque correspondant de l'Aca-/ démie des Sciences et Professeur d'hidrographie de la ville, le Pere Mouchet de l'Oratoire professeur de Phisique en l'Université de la ditte ville MM. Coutard/ de Massy Chevalier de St. Louis, Le Chevalier de Tussac amateur, Louvrier Apoticaire, Schenet jeune Architecte, Dulau et Passelez./ Il portoit deux voyageurs aeriens, M. Coutard et le Pere Mouchet et a été remplit au 2/3 de gaz extrait du Zinc par l'acide vitriolique en 10 heures ½ ce qui aurait été/ fait en beaucoup moins de tems sans un vent de N.O. très violent, à 6.h. 10.Min. il s'est eleve, a plané l'espace d'un quart d'heure et a disparu aprés avoir fait jouir toute/ la ville du spectacle le plus majestueux./ Ayant parcouru 9 lieues en 58 minutes les voyageurs sont descendus sans accident à Geté Paroisse distance de 7 lieues de Nantes, ou faute de secours/ et malgré leurs efforts ils n'ont pu retenir l'areostat qui e'est perdu dans les nuages en moins de 2 minutes et est tombe vers les 9.h. du soir a Bressuire/ Ville du Poitou, distante de 22 lieues de Nantes./
Se vend à Nantes chez Auvray Md. d'Estampes petite rue des Carmes, proprietaire de la Planche et par les soins duquel elle a été gravé, et à Paris./ chez Petit, Rue du petit-Pont, à Limage Notre Dame No. 12.

32 Miolan and Janinet. 1784
(For inscription see illustration).

33 St. Cloud. First Cylindrical Balloon. 1784
(For inscription see illustration).

34 **The First Cylindrical Balloon.** 1784

(Above) VUE DES 24 JETS A ST. CLOUD. *(Below)* 2ME. EXPERIENCE DE M.M. ROBERT Freres./ DEDIÉE et PRÉSENTE à son ALTESSE SERENISSIME/ MONSEIGNEUR le DUC de CHARTRES :/ Cet Aërostat fut construit par les ordres de Mgr. le Duc de Chartres. Le 15 Juillet/ 1784 a 8 heures du matin, il fut conduit dans la piece des 24 Jets et au milieu/ de la plus nombreuse et la plus brillante assemblée il s'eleva avec majesté et/ offrit aux spectateurs un moment de spectacle qu'il est impossible de rendre/ Cet Aerostat retenu avec deux cordes par les Epousés des deux Voyageurs, fut/ abandonné a lui meme aux applaudissements universels. Toutes les personnes/ reunies dans le centre se prelerent avec la plus grande complaisance aux desirs/ des spectateurs jaloux d'admirer cette enorme machine, une grande partie s'assoyant/ a terre et l'autre a genoux : Mr. le Comte Haga‡ fut un des premiers a seconder/ l'intention du Public. Jamais experience n'offrit dans tous ses details autant de magie ;/ et d'ordre dans sa marche. Les yeux sembloient vouloir retenir a une certaine/ hauteur ce superb Aerostat, mai un nuage epais l'ensevelit bientot, il reparut./ vers le neuf heures et prit terre dans le Parc le Meudon sans aucun accident./ Cet Aerostat etoit monté par Mgr. le Duc de Chartres M.M. Robert et un secondant. ‡le Roi de Suede.
Par son très humble et très respectueux Serviteur le Vachez.
A Paris chés l'Auteur aux Colonnades du Palais Royal No. 266, et sous le Quay de Gevres a l'Esperance. A.P.D.R.

35 **The First Ascent From Vienna.** 1784

Das grosse Luftschif des H. Stuwers heilt 134.342 Cubic schuhe/ Luft, die Fragwolke 2300 Elen Kanefas, die ganze Schwere 3000/ Psund, und siege mit 4 Menschen den 29 Jully zu Wien im/ Prater in die Höhe./ Zweyte Vorstellung.

36 **Rodez. The Ascent of L'Abbé Carnus.** 1784

VUE PERSPECTIVE DE LA VILLE DE RODEZ, CAPITAL DU ROUERGUE/ PRISE DU CLOCHER DES CHARTREUX. DÉDIÉE A MONSEIGR. SEIGNELAY/ COLBERT DE CASTEL-HILL, EVEQUE ET COMTE DE RODEZ/, CONSEILLER DU ROI EN TOUS SES CONSEILS./ Cette Vue est ornée de la superbe Montgolfiere, de forme sphérique, du diametre de 52 pieds, composée dune simple toile revetue en-dedans d'un papier d'impression, et/ construite à Rodez par Mr. l'Abbé Carnus, Professeur de philosophie. S'est elevée le 6 aout 1784, avec ce physicien, accompagné de Mr. Louchet son confrère, à la hauteur de 8500/ pieds au-dessus du niveau de la mer. Son ascension fut presque verticale, très-majestueuse, et sans le moindre balancement : elle se soutint pendant 30 minutes à une grande élévation, et/ toute les matieres combustibles étant consumées, elle alla se poser doucement sur la cûne d'un petit arbre : Mr. l'Abbé Carnus en étant alors descendu, et le réchaud ayant été detaché, elle se rele./ va à plus de 200 toises, sans que le poid de l'autre voyageur la fit incliner d'une manière sensible ; et 5 minutes après, elle descendit dans une prairie, distante de Rodez de plus de 7000 toises./ Une Cavalcade nombreuse et la Garde Bourgeoise vinrent au devant des intrépides argonautes avec les Drapeaux et Etendars de la Ville, et les ramenerent en triomphe au son des tambeurs et trompettes.
Par son très humble et très Obeissant Serviteur N. T. Candieu, Professeur de l'Ecole Royale de Dessin de la dite Ville le 14 Decembre. 1784.
Candieu del. Blanchon Sculp.

37 **Count Moret's Chelsea Balloon.** 1784

(For inscription see illustration).

38 **The First Ascent in England.** 1784

An exact representation of the/ GRAND AEROSTATICK MACHINE with which/ Mr. Lunardi ascended from the Artillery/ ground Sepr. 15 1784. Scetch't on the spot/ and corrected under the immediate inspection/ of a Gentleman who superintended its con-/struction./

a.a. Two tubes by which the ballon was filled with common air at the lyceum.
b. A D^{o}. for infusing the inflammable air
c. A rent caused by an accident on the morning of expedition repaird.
d. A valve to which the network was fastened.
e. Ballast of sand which the Aerostatist could dislodge with his foot.
f. Grapples to confine the balloon in its descent.

Pub. by W. Wells. Sepr 20th 1784, at No. 132, Fleet Street.

39 **Lunardi's Proposed Ascent from Chelsea Hospital.** 1784
(For inscription see illustration).

40 **Lunardi's Proposed Ascent.** 1784
(For inscription see illustration).

41 **Lunardi's Ascent from the Honourable Artillery Company's Ground.** 1784
(For inscription see illustration).

42 **Lunardi's Balloon Exhibited at the Pantheon.** 1784
A Representation of MR. LUNARDI'S BALLOON, as Exhibited in the PANTHEON, 1784./ To the Right Honourable Frederick Earl of Carlisle, Knight of the most Ancient Order of the Thistle, &c., &c./ This Plate is most respectfully dedicated by his Lordship's most devoted and obedient humble Servant/ F. G. Byron./
Drawn by F. G. Byron. The Aquatinta by F: Jukes. Engraved by V. Green, Engraver to his Majesty, &c.
Published Feby. 1st 1785, by F. G. Byron, No. 44, Wardour Street, Soho, London.

43 **The Second Cylindrical Balloon.** 1784
(Above) BON VOYAGE. *(Below)* EXPÉRIENCE DU GLOBE AEROSTATIQUE DE MM. LES FRERES ROBERT, au Jardin des Thuileries/ le 19 Septbre. 1784. à 11 h. du matin.
A Paris chez Esnauts et Rapilly, rue St. Jacques, à la Ville de Coutances.

44 **The Second Cylindrical Balloon.** 1784
(Above) BON VOYAGE....*(Below)* EXPERIENCE DU GLOBE AEROSTATIQUE DE MM. LES FRERES ROBERT, au Jardin des Thuileries./ Après les signaux donnés, le Ballon fut conduit à 11 h. et demie de l'entrée de la grande allée à l'estrade construite sur le Bassin qui fait face au/ Chateau Les 4 cordes furent tenues par M. le Maréchal de Richelieu, M le Mal. de Biron, M. le Bailli de Suffren, et M. le Duc de Chaulnes./ Arrivés à l'estrade, les trois Voyageurs, MM. Robert freres et M. Colin Hullin, leut Beau frere, se placerent dans le Char: après les différentes/ opérations nécessaires pour constater son excès de légereté, la Machine s'enleva à midi moins 2 minutes, aux acclamations multipliées de/ la plus nombreuse et la plus brillante compagnie, le Dimanche 19. 7bre 1784.
A Paris chez Esnauts et Rapilly, rue St. Jacques, à la Ville de Coutances.

45 **The Second Cylindrical Balloon rising from the Tuilleries.** 1784
GLOBE AÉROSTATIQUE/ DE MRS. CHARLES et ROBERT/ Au Moment de leur depart du Jardin des Tuileries./ le 1er Xbre 1783/ Ce Second Globe représente la 2eme expérience de MMes. Robert/ faite au Jardin des Thuilleries/ le 19 Septembre 1784.
Dessiné par Mr. Duperreux fils./ Gravé par L. Boutelou.
Se vend chez le Graveur Rue St. Hiacinte vis-à-vis le Jeu de Paume, A Paris.

46 **The Burning of Keegan's Balloon in Lord Foley's Garden.** 1784
ALL ON FIRE—Or the Doctors disappointed. A view taken in Lord Foley's Garden Sep. 29. 1784. 1. The principal Figure. 2. Companion to ditto.
London. Published Oct. 20. 1784. by E. Wyatt No. 360 Oxford Street.

47 A Caricature of Keegan's Balloon passing along Picadilly. 1784

John Bul-loons Asses Distanced by the Ganzas or Large Geese of Domingo in a Voyage to the World in the Moon.

48 The Balloon leaving Dover. Oil Painting by E. W. Cocks.

49 The First Channel Crossing. 1785

(a) (For inscription see illustration).

(b) Dedié à Mr. Blanchard, Pensioné du Roi, Citoyen de Calais,/ APPARITION DU GLOBE AEROSTATIQUE DE MR. BLANCHARD, ENTRE CALAIS ET BOULOGNE,/ parti de Douvres le 7 de Janvier 1785 à 1 heure ½. Dessiné par Desrais. Gravé par J. Bonvalet.

Le Pécheur qui sur l'eau tenait son bras tendu
Laisse tomber sa ligne il reste confondu,
Les ïeux fixés au ciel, courbés sur sa charue.

Le Laboureur les voit et les suit dans la nue
Le timide Berger les crut des immortels
Et dans són cœur trouble leur dresse des Autels.

Avec Privilege du Roy. Par son trés Humble et trés Obeissant Serviteur Basset.
a Paris chez Basset rue St. Jacques au coin de celle de Mathurins.

50 An Early Attempt at Dirigibility, *circa* 1785

Globe fait pour etre dirigé.

51 Vincent Lunardi's Second Balloon. 1785. Water-colour by J. Dighton.

52 The Preservation of Sir Richard MacGuire. 1785

The Preservation of Sir Richard MacGwire/ Who fell into the Sea (by the descent of a Balloon) off the Coast of Ireland, on the 12th of May 1785.
J. J. Barralot ad vivum delint. W. Ward sculpt.
Published as the Act directs June 4th 1787, by Thos. Milton No. 10 Great Queen Street, Lincolns Inn Fields, London, and by J. James Barralot in Dublin.

53 The First Ballooning Fatality. 1785

(For inscription see illustration).

54 Lunardi, Mrs. Sage and Biggin. 1785

(For inscription see illustration).

55 The St. George's Fields Balloon. 1785

Copia de la 3a MAQUINA AEROSTATICA construida porel Captain Dn. VICENTE LUNARDI, en la que se elebó en LONDRES en compañia/ del Caballero BIGGIN y Madama SAGE, á los 9e puso en tierra felizmte. despues de haver corrido 14 leguas; prosiguió despues LUNARDI solo, y descendió 5./ leguas mas allá en la Quinta de su Amigo el BARON DICK. Se bolvió á elebar, y pasó sobre la Ciudad de CHESTER: y finalmte. se apeó junto al/ Castillo de TARPOLY, habiendo corrido 40. leguas de Atmosfera en menos de 4. horas.

56 The Perilous Situation of Major Money. 1785

The PERILOUS situation of MAJOR MONY,/ When he fell into the Sea with his Balloon on the 23d. of July 1785, off the Coast of Yarmouth;/ Most providentially discover'd & taken up by the Argus Sloop, after having remained in the water during five hours./ La Situation perilleuse de Majeur Mony, qui tomba avec son Ballon, dans la mer, sur les cotes de Yarmouth le 23 Juillet l'an 1785,/ et qui fut decouvert, et sauvé, d'une maniere presque miraculeuse, par l'Argus Chaloupe, apres avoir été dans les flots, pendant cinque heures. Reinagle Pinxit. Murphy Sculpsit.
London, Published June the 24th 1789, by John Murphy No. 18, Warwick Street, Golden Square.

57 The Ascent of Blanchard and Lépinard from Lille. 1785
LA QUATORZIEME EXPÉRIENCE AEROSTATIQUE DE M. BLANCHARD./ accompagné du Chevalier Lepinard faite à Lille en Flandre, le 26 Aout 1785./ DEDIÉE à MESSIEURS les MAGISTRATS, de la VILLE de LILLE en FLANDRE.
(Shield in centre).
Peint par L. Watteau, Professeur de l'Académie de Lille.
Gravé par Helman, de la Même Académie.
Se vend à Lille chez L. Watteau, Rue et vis-à-vis l'Eglise St. Pierre.
Par leurs tres Humbles, et tres Obeissants Serviteurs, L. Watteau.

58 The Return of Blanchard and Lépinard to Lille. 1785
ENTRÉE DE MR. BLANCHARD ET DU CHEVALIER LEPINARD,/ cinq jours après leur Ascension Aerostatique, dans la Ville de Lille, le 26 Aout 1785./ DEDIÉE à MADAME la MARQUISE de VIGNACOURT.
(Shield in centre).
Peint par L. Watteau, Professeur de l'Académie de Lille.
Gravé par Helman de la meme Académie.
Se vend à Lille, chez L. Watteau, Rue et vis-à-vis l'Eglise St. Pierre. et chez l'Auteur. Rue St. Honoré No. 315.
Par son très-Humble et très Obeissant Serviteur, L. Watteau.

59 The Balloon of Alban and Vallet. 1785
(No inscription).

60 Blanchard's Frankfurt Ascent. 1785
Aerostatischer Versuch in Franckfurth am Main von dem grösten Aeronauten H. Blanchard,/ am 3 Sep: 1785 augeführt, der Ballon Latte 40 Schuh höhe, und 30 Schuh im churchschnitt, die/ Erhebung geschahe um 10 Uhr 24 Minuten.

61 Blanchard's Hamburg Ascent. 1786
(For inscription see illustration).

62 Blanchard's Nuremberg Ascent. 1787
Blanchard's 28te. Farth zu Nürnberg, den 12ten November Ao 1787.
A. W. Kutsner del et fc 1788

63 An Ascent by Vincent Lunardi from Madrid. 1792
Globoge Se elebo en el buen retiro el Dici 12 Agosto por Dn. Vicente Lunardi/ y'bajo en Daganzo a Gleguas Madrid Cnaplaisso de todas a 1792. Jo. Rz

64 The Battle of Fleurus. 1794
BATAILLE de FLEURUS gagnée par L'ARMÉE FRANCAISE, le 8 MEBBIDOR de L'AN 2./ Commandé par les Généraux Jourdan, Le Fevre, et zatri: Contre l'Armée Impérale: Commandée par Cobourg, et Beaulieu./ Deposée à la Bibliotheque Nationale./
Naudet del. Le Beau Sculp.
A Paris chez Jean, rue Jeane de Beauvais, No. 32.

65 *(a)* "The Latest Invention for steering an Air Balloon at Will."
Frontispiece to "Uber Meine Erfinding einen Luftballon durch Adler zu regieren" by Jakob Kaiserer (Vienna 1801).
(For inscription see illustration).

65 *(b)* An Equestrian Ascent by Testu Brissy. 1798

LE CHEVAL ARÉONAUTE/ ou Ascension de Testa Brissy à Meudon.

66 The First Parachute Descent in England. 1802

A VIEW/ MONSR. GARNERINS ascension with his BALLOON from St. Georges Parade North Audley Street,/ Grosvenor Square on Sept. 21, 1802, and his descending with his Parachute, from the heighth of 8000 Feet.
Drawn and Etch'd by T. Piggot Penton Street Walworth, and Published by him and John Bellamy No. 10 Borough Road Southwark, Oct. 1. 1802.

67 The Rescue of Zambeccari, Andreoli and Grassetti. 1803

GLI AERONAUTI FRANCESCO ZAMBECCARI BOLOGNESE. PASQUALE ANDREOLI ANCONITANO E GAETANO GRASSETTI ROMANO CADUTI SULL'ADRIATICO E/ RICUPERATI IL GIORNO 8 OTTOBRE Anno 1803./ Il secolo XVIII ha vedute il primo innalzarsi a volo gli Uomini oltre le nubi mediante Macchine Aerostatiche. Si ardimentosa invenzione ancor bambina, volle il Zambeccari in Bologna coll ingegno/ il opra e il denaro suo perfezionarla. Questa sperienza, che eccitava la curiosita, e l'ammirazione d'ogni classe di persone avrebbe avuto luogo il di 4 Settembre 1803. se omissione, ch'egli/ non pote prevedere, non l'avessero costretto a differirla. Ma quel generale entusiasmo che l'incorraggiva tradi lui, e l'esperienza. Il di sette Ottobre dopo mezzo giono, si accinse ad introdurre/ 13000 piedi cubici d'aria inflamabile in un Globo di diametro piedi 34, ma l'operazone non era ancora del tutto compita, quando stanco digiuno, e collo spirito amareggiato, co suoi Com/ pagni che vollero sequirlo s'innalzo a ¼ d'ora dopo mezza notte contornato d'acclamazioni eccitanti. Allora la sua sperienza si cambio in uno spettacolo azzardato. Non pote usare veruna/ delle sue pratiche assicurate dalle Teorie. Cosi dopo pochi minute trasportato in un atmosfera troppo rarefatta, cadde, e dopo lui il Grassetti, presi da letargo. L'Andreoli, dopo aroa ½ ora, sorpreso/ da rumore somigliante al fragore dell 'Onde, per cui credevasi sull Mare, scosse il Zmbeccarri dal suo sonno mortale e questi risorto, volle tosto conoscere sul barometro l'elevazione del Glo-/bo; ma il lume che del pari languiva si estinse. Allora colle loro mani gelate si tardo a riaccenderlo e in questo mentre, che erano le Ore 3, la Macchina piombo sul'onde, ne si rialzo che/ dopo gettata la poca zavorra, che seco aveano portato, non che gli strumenti. La Macchina si porto di bel nuovo a grand elevazione, ma sopracaricata d'una brina gelata ricadde sull acque/ alle ore 3½ circa. Cosi strascinati dal vento S E. per ben 4 ore il Patron Antonio Rassol da Selve su quello che deviandosi a bella posta dal suo camino, racolse quigl' infeliu in distanza di miglia 10 dalle Premontore. P. Bambelli, incise in Roma.

68 Festivities at the Coronation of Napoleon I. 1804

(Above) XII FRIMAIRE AN XIII (3 Decembre 1804)./ *(Below)* FETE DU SACRE ET COURONNEMENT DE LEURS MAJESTÉS IMPÉRIALES./ Vue de la Place de la Concorde, ornée des quatre Salles de danse et du Piedestal élevé au milieu, à l'instant ou la fête commence par la distribution de/ Médailles, le départ des Chas remplis de Musiciens et l'Ascension des 5 Balons qui s'éleverent majestueusement a une certaine hauteur ou ils détonnerent. Le Cœur del. Gautier ag. fort. Marchand sculp.

69 A Napoleonic Project for attacking England. *Circa* 1803

(No inscription).

70 Degen's Flying Machine. 1807

(For inscription see illustration).

71 Sadler and Clayfield in the Bristol Channel. 1810

TO THE WORSHIPFUL THE MAYOR/ & CORPORATION OF THE CITY OF BRISTOL./ This print (of the PERILOUS SITUATION of MESSRS. SADLER & CLAYFIELD, who ascended from BRISTOL/ on the 24th of Septr. 1810, at 20 Minutes past 1 o'clock, and descended in the BRISTOL CHANNEL, near/ WATERMOUTH, about 10 Minutes past 4 o'clock, after passing over upwards of 80 Miles by Water, & 20 by Land in/ less than 3 hours.) Is most respectfully dedicated by their devoted and very humble servant/ E. M. Jones.

Drawn by E. M. Jones.

Published April 29th 1811, by E. M. Jones, No. 32 Little Newport Street, Newport Market.

72 Ascent of James Sadler and Captain Paget from Hackney. 1811

(Above) A VIEW OF THE BALLOON OF MR. SADLER'S./ *(Below)* THIS BALLOON ASCENDED WITH MR. SADLER AND CAPTAIN PAGET OF THE ROYAL ~~NAVY~~/ from the Mermaid Gardens at Hackney in Middlesex at three O'clock on monday afternoon August the 12th, 1811, and descended in a field/ near Tilbury Fort in Essex at twenty minutes past four O'clock.

A The Balloon. B The Car. C Mr. Sadler. D Captain Paget.

Published Augt. 21 1811 by J. Pitts No. 14 Great St. Andrew Street, Seven Dials.

73 Monsieur and Madame Garnerin

(No inscription).

74 A Parachute Descent by Eliza Garnerin. 1815

(Above) POUR LA FETE DU ROY! PAR ELISA GARNERIN.

75 Caricature of the Paully and Egg Balloon. 1816

New Area! Grand Inventions! Amusing Speculations! Gulliver probable. Maunchausen but dubious Laputa realized. King Saleh's Dominions explored, Flying over Ships in the Winds eye and driving through the Sea under/ them, as will be exemplified by the FISH BALLOON and the Projected FLOATING BRIDGE & Sub-marine Tunnel to be constructed between Gravesend & Tilbury Fort. the Balloon is to take Passengers to Paris Pekin or/ *elsewhere* the Bridge & Tunnel for Persons &c to cross the River without impeding the Navigation. Should a liberal Subscription be made: similar Ones will be established between DOVER & CALAIS and HOLYHEAD & DUBLIN/ that the Noblity & Gentry may post over under the water without they prefer going by the Fish Balloon. NB. No Connexion with the Man who is to Stay in an Oven while a leg of Mutton is Baked. Further Particulars may be/ had at any of the Offices of Messrs. H-mb-g & Co.

Published June 4th 1818. Price One Shilling.

76 Eugene Robertson's Ascent from New York. 1826

ASCENSION D'EUGE. ROBERTSON DU CASTLE GARDENS, A NEW-YORK./ le 10 Octobre, 1826./

Lith de Engelmann.

77 Mr. Charles Green, the Aeronaut.

MR. CHARLES GREEN, THE AERONAUT./ From the Original in the possession of Robert Hollond Esqre. M.P./ To whom this plate is respectfully dedicated/ by his obliged and obedient Servants/ Hodgson & Graves. *(Shield in centre).*

Painted by John Hollins. Engraved by G. T. Payne.

London, Published June 5, 1838, by Hodgson & Graves, Printsellers by Special Appointment to Her Majesty, 6, Pall Mall.

78 An Equestrian Ascent by Charles Green. 1828

(No inscription).

79 The Opening of New London Bridge. 1831

THE OPENING OF NEW LONDON BRIDGE/ by their most Gracious Majesties William the 4th & Queen Adelaide.

1. Lords in Attendance
2. Royal Family
3. Royal Barge
4. Earl Grey and Ministers
5. Lords Commisseoners of the Admiralty
6. Sect$^{s.}$ of State &c.
7. Gen$^{l.}$ Comd$^{r.}$ of the Army
8. Ma$^{r.}$Gen$^{l.}$ of the Ordnance
9. Comd$^{r.}$ in Chief of H.M. Ships
10. Trea$^{r.}$ of the Navy
11. Navy Off$^{r.}$ Boat
12. Commis$^{r.}$ of the Navy

London Published by R. Havell 77, Oxford Stt.

80 Graham's Ascent at the Opening of New Hungerford Market. 1833

VIEW OF THE NEW HUNGERFORD MARKET./ AS IT APPEARED AT THE OPENING ON THE 2ND JULY, 1833.
Del. & lith by M. O'Connor.
Printed by W. Clerk 25 Dean St.
Published by W. Soffe. 380, Strand, July 1833.

81 The Vauxhall Gardens Balloon. 1836

(For inscription see illustration).

82 Robert Cocking's Parachute. 1837

THE ONLY AUTHENTIC SKETCH OF THE ASCENT OF THE VAUXHALL BALLOON WITH MR. COCKINGS PARACHUTE./ Distance of the Car of the Balloon from the Parachute, 50 feet./ Diameter of the Parachute 36 feet./ The Streamer from the Balloon was a canvas tube for throwing out Ballast./ From drawings made during the preparations for the Ascent and at the time the Balloon rose from the Gardens./ WITH A SKETCH OF THE FATAL DESCENT OF MR. COCKING.
London. Published by W. Spooner, 377, Strand.

83 W. S. Henson's Aeroplane. 1843

By permission of the Patentees,/ THIS ENGRAVING of the FIRST CARRIAGE, the "ARIEL,"/ is respectfully inscribed, to the Directors of/ THE AERIAL TRANSIT COMPANY,/ by their obedient servants,/ THE PUBLISHERS.
W. Walton Lith: Day & Haghe Lithrs. to the Queen.

84 A Forecast of the Glider

EXPLICATION./ Les deux Ballons, plein d'air inflamable, suivent une direction déterminée, tandis que le troisieme dépourvu de son Gaz et soutenu/ par l'immence surface qu'il présente à l'aide de son gouvernail, vers un lieu propice: les deux Voyageurs qui planent en/ l'Air, avec des habits Aërostatiques et des Manivoles en mains, ont quitté ce Batinent, ainsi que le Voyageur qui est à terre; celui ci a son/ habit retroussé et ses Manivoles près de lui, tous ont des Scaphandres, pour les faciliter à voguer sur l'eau: une Boussole qui est sur/ le devant de ces Scaphandres, a pour objet de guider les Voyageurs, lors que les Brouillards ou l'éloigement leurs empêcheroient de/ voir la terre; l'espece de Lenterne, qui est en haut des Ballons, doit contenir un homme pour faciliter la maneuvre des voiles./ Nil tam difficile est, quin quoerundo investigari possiet./ Terent. in Heaut.
Thib. St. Andrea inv. et del. M. Fessard, Sculp.
A Paris chez M. Fessard, Rue Amelot même Maison de Mr. Beruyer Salpetrier du Roi, au Pont aux Choux. A. P. D. R.

85 A French Revolutionary Caricature.

LES JACOBINS ALLANT REVOLUTIONER LA LUNE EN BALLONS./ Ah ca ira, ca ira, ca ira.

86 Illustration from “The Voyage and Adventures of Domingo Gonzales to the World in the Moon.”

(Above) THE VOYAGE TO THE WORLD IN THE MOON./ *(Below)* Printed for JOHN LEVER at Little Moorgate next to London near Moorfields./
Frontispiece to “The Voyage and Aventures of Domingo Gonzales to the World in the Moon” (by Francis Godwin, Bishop of Hereford) 2nd edition 1786.

87 *(a)* Frontispiece to “Les Estats et Empires du Soleil.”

(b) Frontispiece to “Les Estats et Empires de la Lune.”
From “Les Œuvres diverses de Monsieur de Cyrano de Bergerac,” 2 Volumes. Amsterdam, 1699

ILLUSTRATIONS IN TEXT.

Daedalus and Icarus — page 3

The Development of Heavier-than-Air Machines down to 1880 — pages 9 to 12

(Above) TABLEAU D'AVIATION/ REPRESENTANT TOUT CE QUI A ÉTÉ FAIT DE REMARQUABLE SUR LA NAVIGATION AERIENNE SANS BALLONS/ d'après les documents extraits de la collection/ de M. le DR. HUREAU DE VILLENEUVE/ par E. DIEUAIDE, auteur du Tableau des Mouvements de mécanique, pour faciliter les Etudes/
Déposé. Tout droits réservés. Nota. Les appareils précédés du signe* out été construits et expérimentés.
(Below) see illustration.

The Development of Lighter-than-Air Machines down to 1851 — „ 29 to 32

(Above) TABLEAU DE L'ART AÉROSTATIQUE ET DE LA DIRECTION DES BALLONS./ PARIS, MAISON BASSET, RUE DE SEINE, 33.

AERONAUTICAL PRINTS & DRAWINGS

THE possibility of the achievement of flight by man is a subject which has always exercised a fascination for the poet since the time of Ovid, as well as for the seeker after knowledge from Archimedes onwards. Most of us have been brought up on the story of the successful escape of Daedalus from the vengeance of Minos, King of Crete, and the tragic fate of the over-confident Icarus, the legendary first martyr in the cause of aviation, which is depicted in so spirited a manner in the woodcut reproduced at the top of page 3, taken from what is in all probability the first printed picture of an aeronautical subject contained in "Spiegel der Wahren Rhetorik," by F. Riederer, published at Freiburg in 1493.

No attempt has been made in this book to cover all the manifold abortive schemes which were produced during the seventeenth and eighteenth centuries before the brothers Montgolfier proved, once and for all, that it was possible for man to go up in the air, and incidentally started the controversy which has raged ever since over the relative merits of the airship and the aeroplane. It may, further, be as well to state at the outset that owing to limitations of space it is only possible even to refer to a very small proportion of the large number of prints that exist, of which those produced in France are both more numerous and on the whole more artistic than those engraved elsewhere.

A certain unevenness of artistic merit—which is perhaps on the whole disappointingly low—is inevitable if the book is not to be overloaded with too many depictions of a few subjects. Such occasions as the original Montgolfier and Charles ascents in Paris, the Lunardi ascents in England, and the many voyages by Blanchard all over the Continent, called forth a very large number of engravings; whereas other occasions of almost, if not quite, equal interest, such as the first launching of a balloon in England by Zambeccari on 25 November, 1783, may have inspired only a single print. For this reason, and for another which will be explained in a moment, one would like to make it perfectly clear that the absence of mention of a specific print from these pages does not by any means necessarily imply ignorance of its existence. It will not, in fact, be safe to assume that either inclusion or exclusion implies rarity, and the quoting of this work as any indication of the value of a print is deprecated. It is inevitable that occurrences, such as have been mentioned above, which were depicted in a large number of prints should be more fully represented here than subjects of which there is a paucity; but even this has not been the only factor in selection.

So far as possible the inclusion of prints—the well-known portrait of Vincent Lunardi by Bartolozzi, after Cosway, is a typical case in point—which have already been so frequently reproduced as to be familiar, has been avoided. For this reason many prints are omitted which are to be found in Bruel's fine volume, "L'Histoire de l'Aéronautique par les Monumens," published in Paris in 1909, as it has been assumed that anyone wishing to study the subject will make himself familiar with that work; although it can fairly be claimed that the scope of the two books is widely divergent, in that Bruel confined himself to a brief description of the actual prints there reproduced, whilst an endeavour is here made to hint at a wider selection than the prints specifically shown. At the same time it must be confessed that it has not been possible to live up to the ideal of excluding all that Bruel includes, as that would have resulted in an unjustifiable limitation; particularly in view of the fact that that authority is not now readily accessible and has itself become a subject for the collector. So far as English prints are concerned it can, however, be stated that no print is reproduced here which will be found in Mr. J. E. Hodgson's "History of Aeronautics in Great Britain" (with the exception of the last state in the evolution of the Lunardi engraving shown in Plates 39, 40 and 41), and for this particular branch of the subject the two books may be considered as, pictorially, to some extent complementary to each other, the historical work naturally containing reproductions of purely technical interest which would be out of place here.

The aim has, in short, been to give such a selection as will enable the collector to have a fair idea of the pictorial representations that appeared of the chief aeronautical ascents and projects which were a feature of the last two decades of the eighteenth and continued down to the middle of the nineteenth

DAEDALUS AND ICARUS.

century, when the appearance of the newspaper illustration and, later, the development of the photograph ousted the more leisurely work of the artist. The book will, it is hoped, also serve, in a sense, as an illustrated introduction to the history of the development of aeronautics in England and on the Continent during the period; though only, of course, with reference to incidents which are specifically illustrated in the reproductions.

For reasons already given it has not been thought necessary to include the various sketches of parachutes, helicopters, and gliders to be found among the manuscripts of Leonardo da Vinci, or the " Aerial Ship " of Francesco Lana, which are already sufficiently familiar. The curious design produced by Gusmao in 1709 (Plate 1), is, however, not so well known and has interest because of the far-reaching protection afforded to the inventor by the King of Spain (who threatened with the death penalty any rival endeavouring to produce a flying machine), as well as for the statement which has frequently been made that the machine actually ascended; although no contemporary record of this appears to be extant, and from the nature of the design it appears to be, to say the least, improbable.

On 28 August, 1781, Jean Pierre Blanchard announced in the Paris press that he had produced a successful design for a flying machine, an intelligent forecast of the appearance of which, on a trial flight, is shown in Plate 2. An interesting feature of this print is the object in the form of a man shown in the air on the right-hand side of the picture which has all the appearance of the variously shaped balloons, in the form of animals, men riding on horses, etc., which were a popular feature of the subsequent craze for aerostation. On the other hand, from internal evidence which will be referred to later in another connection (see Plates 6 and 7), it seems likely that this plate, which unfortunately bears no date, was produced in 1782, or at any rate before the invention of the balloon in June, 1783, so that it would appear that the object shown must have been intended for some sort of kite; a conclusion which is to some extent confirmed by the insertion of the string. Needless to say this machine was not successful, and, indeed, on the appearance of the balloon two years later Blanchard wrote a handsome confession to Montgolfier that the latter's invention had shown him his error, and himself became one of the most active and foremost balloonists of the next thirty years.

There are, as might be expected, many portraits of the Montgolfier brothers, including several—by Roze Le Noir, de Launay and others—after a bas-relief of Houdon showing the two together in profile. The collector should be warned, however, that copies of some of these have appeared, such as for instance the plate by Pigeot issued with a special number of "Portraits et Histoire des Hommes Utiles," published in 1834. Of the single portraits, those of the elder brother, Joseph Michel, are the finer and more numerous, the two best being that reproduced here (Plate 3), and an engraving after a crayon portrait by de Boissieu which is given by Bruel. Jacques Etienne, the younger of the two, seems to have inspired mostly medallion portraits, of which that by Legrand, after Pujos, reproduced by Bruel, and a profile by Le Beau, after Binet, given here (Plate 4), are perhaps the best.

Only one print appears to have been issued of the first balloon to ascend in public at Annonay, in the Vivarais district, on 5 June, 1783, as the outcome of the two Montgolfiers' private experiments (Plate 5, right). This forms one of a series of fifteen, or possibly sixteen, copper-plate engravings by de Launay, after paintings by the Chevalier de Lorimier, published by Vachez in both the coloured and uncoloured state, some of which were used as illustrations in the two-volumed "Description des Experiences de la Machine Aérostatique," by Faujas de Saint-Fond, which is the chief contemporary authority for the details of the earlier ascents. One of this series, forming the frontispiece of Saint-Fond's second volume, was taken from the terrace of the Passy house of Benjamin Franklin, whose letter to Sir Joseph Banks, President of the Royal Society, describing Pilâtre de Rozier's and the Marquis d'Arlandes's ascent (Plate 12) is preserved in M. Paul Tissandier's wonderful collection. Several of the original water colours of this series are to be seen in the small room devoted to aeronautics in the Musée Carnavalet, the Paris Municipal Museum which now fills the former home of Madame de Sévigné.

Plate 6 is one of several plates depicting the first ascent of a balloon filled with hydrogen, as opposed to the hot-air "Montgolfière," which was sent up from the Champ de Mars, where the Eiffel Tower now stands, on 27 August, 1783. This plate is interesting because a close inspection will show that it is the same engraving that originally represented the imaginary trial ascent of the Blanchard machine already referred to (Plate 2). Portions of the kite strings are still to be seen, and the only change in the foreground is the substitution of a small representation of the Ecole Militaire for the Tuilleries buildings, with the absurd result that the hills of Montmartre (including the famous windmills) are still to be seen, and the dome of Les Invalides appears to the right of the Ecole Militaire, whereas, of course, in fact, it is on the left when facing south, as in the engraving.

Plate 7 shows still a third state of this plate, in which the whole of the landscape has been erased and a large representation of the Ecole Militaire and avenue of trees in front (which are to be seen to-day exactly as in the print) substituted; but the figures of the man and the boy in the foreground, who in the first state were holding the ends of the kite strings, are still retained in what have become meaningless attitudes.

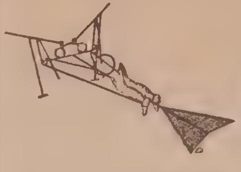
There are several other engravings of this ascent (including a German reversed " optical " print similar to Plate 7, with the same meaningless figures), most of which make the curious error of attributing the balloon to the Montgolfiers, whereas it was, as stated above, the first hydrogen balloon constructed under the supervision of the physicist Charles by the brothers Robert. Saint Fond amusingly recounts that a violent rain storm came on just at the moment the balloon was released; but " the elegantly attired ladies, with their eyes glued to the balloon, received the copious downpour with equanimity, being much too occupied in watching so amazing a sight to bother about protection from the storm." In one of the contemporary prints (included in the series published by Vachez already mentioned), the artist has indicated the rain, but, in spite of Saint Fond's ecstasy, the spectators are usually shown sheltering under umbrellas, as in Plate 7. The balloon rose rapidly to a height of some 3,000 feet, when it was lost in the clouds, and fell in the village of Gonesse about ten miles away, where it caused the greatest consternation among the inhabitants, who, under the impression that it was a dangerous animal, attacked it with every sort of weapon, and finally tied it to the tail of a horse and dragged it across country. This scene is shown in the print reproduced in Plate 8, of which German and English copies were published at Augsberg and by John Wallis of Ludgate Street, who also published a copy in colours of Plate 7. This occurrence caused the issue of a proclamation to the public explaining the nature of balloons, with the reassuring statement that " anyone who sees one of these globes, presenting the appearance of an obscured Moon, may be satisfied that so far from being a terrifying phenomenon, it is only a machine . . . . which is quite harmless and which it is to be presumed will some day prove of benefit to Science."

Early in September 1783 Etienne Montgolfier came to Paris, at the invitation of the Académie Royale des Sciences, to repeat the Annonay experiment, and a balloon was constructed in the garden of M. Reveillon, a paper maker, in the Faubourg S. Antoine, and transferred to Versailles ready for an ascent on 19 September. On this occasion it was decided to test the safety of balloons for passengers, and a basket was therefore constructed in which were placed a sheep, a cock, and a duck. A staging was erected, beneath which was the fire for rarefying the air, the balloon being placed over a hole in the centre. The inflation, which was witnessed by Louis XVI and Marie Antoinette, was completed in eleven minutes, and the balloon was released after the basket containing the animals had been affixed. Below the basket was suspended a large barometer in a cylindrical case, which may be discerned in Plate 9 (sometimes to be found coloured), showing the balloon just rising. The balloon attained a height of some 1,500 feet and landed in Vaucresson Wood, about two miles from the starting point, after being in the air for eight minutes. It is interesting to note that the first person to arrive on the scene was Pilâtre de Rozier—shortly to achieve fame as the first aeronaut—who was quickly followed by Faujas de Saint Fond and, amongst others, de Lorimier, the author of the beautiful series of pictures already mentioned. There are a number of prints of this ascent, including one after de Lorimier and several somewhat crude large representations of the balloon which show the barometer very clearly. In one of these the different parts of the balloon are lettered with accompanying descriptive text. The ascent was also considerably caricatured, notably in two small plates published in the "European Magazine."

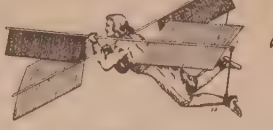
The success of this ascent, in which the balloon landed so gently that none of the animals was injured, determined Montgolfier to construct a considerably larger and more solidly constructed balloon which would be capable of taking up human beings. Suspended by chains below the orifice of the balloon was an iron brazier, around which was a wicker-work gallery to carry the passengers, who were provided with bundles of straw with which to feed the fire in order to prolong the ascent. The balloon, magnificently decorated in blue, with the twelve signs of the Zodiac, royal cipher and other designs in gold, was made, like its predecessor, in the works of M. Reveillon.

On various days between 15 and 19 October captive ascents were made by Pilâtre de Rozier, at first alone, but accompanied on two later occasions by Giroud de Villette and the Marquis d'Arlandes respectively. It is one of these captive ascents which is depicted in Plate 10, taken from a somewhat rare print in the Norman collection at the Patent Office, giving a good view of the garden and very similar to a water-colour by Desrais, which is reproduced in "L'Aéronautique des Origines à 1922," the sumptuously produced companion volume to Bruel prepared by the Comte de la Vaulx and MM. Paul Tissandier and Charles Dollfus in 1922. There are a considerable number of portraits of Pilâtre de Rozier, of which the one given here by Legrand, after Pujos (Plate 11), is very similar to one by Chapuy, after Brion, reproduced by Bruel, who also selected an English print by Collyer, after a crayon drawing of John Russell, depicting him experimenting with hydrogen.

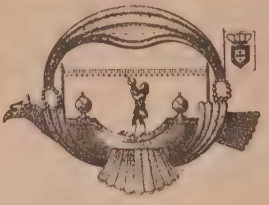
The first free ascent of a balloon carrying human beings took place from the Château de la Muette, the residence of the Dauphin, on 21 November, 1783, when Pilâtre de Rozier and the Marquis d'Arlandes went up in the same balloon in which they had previously made the captive ascent in the Reveillon Garden. During a preliminary test of the lifting capacity of the balloon it was badly torn and became deflated, amid the murmuring of the crowd; but several ladies came to the rescue and proceeded to repair the damage to the fabric, which was made good in an hour-and-a-half, when it was reinflated in the brief space of eight minutes. Pilâtre and d'Arlandes took their places in the gallery, and are seen in Plate 12 just leaving the ground. Carried towards the south-east, they crossed the Seine near where the Palais du Trocadéro now stands, passed between the Champ de Mars and Les Invalides, and landed safely on the Butte-aux-Cailles, a ridge, just within the present-day ring of boulevards south of the Seine, now covered by a street bearing the same name. The distance traversed, which was about five miles, could have been increased, but d'Arlandes, thinking they had gone far enough for a first attempt, ceased to heap fuel on the fire. At one time they had begun to descend, but by stoking the fire up had been able to rise and continue their journey beyond the



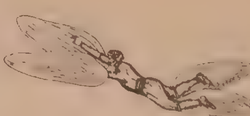
Vers **1500. — Léonard de VINCI**, ses études sur le vol mécanique. On n'aperçoit ici que le bas du corps. Les ailes, dont on ne voit que les bras, sont abaissées par les pieds et relevées par les mains.



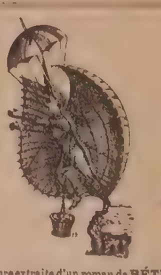
* **1678. — BESNIER.** — Ces ailes pliantes, mues par les pieds et les mains, peuvent s'ouvrir pendant l'abaissement, et se fermer pendant le relèvement.



1709. — Barthélemy-Laurent de GUSMAN. — L'air doit être amené sous les voiles supérieures et soulever l'appareil. Des aimants et des morceaux d'ambre contribuent également à l'ascension.

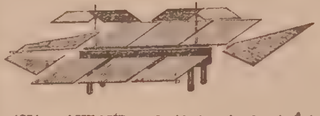


***1742. — Marquis de BACQUEVILLE.** — Système d'ailes avec lesquelles l'auteur se cassa la cuisse en voulant traverser la Seine.

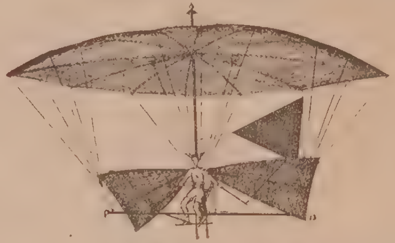


Gravure extraite d'un roman de **RÉTIF DE LA BRETONNE**, intitulé : *Decouverte australe par un Homme volant.*

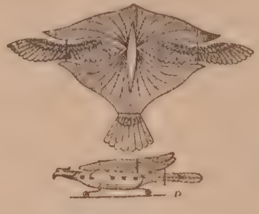
1784.
d'aviation
et de pat
choc.



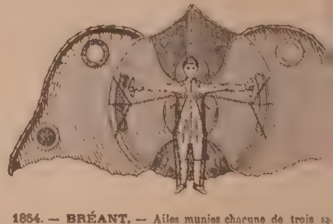
1851. — AUBAUD. — Combinaison de plans inclinés, d'hélices ascensionnelles et d'ailes propulsives. Les pieds sont remplis d'air comprimé pour amortir le choc.



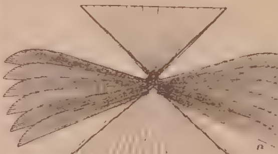
* **1852. — LETUR.** — Système de parachute pourvu d'ailes et d'un gouvernail, avec lequel l'auteur comptait se diriger en partant d'un lieu élevé, et ou il trouva la mort.



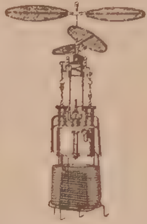
1853. — Michel LOUP. — Genre de plan de glissement s'avançant au moyen de quatre ailes tournantes. L'appareil est muni d'un gouvernail et de roues.



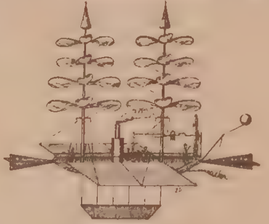
1854. — BRÉANT. — Ailes munies chacune de trois s
pieds et les mains abaissent les ailes qui sont relevées par de



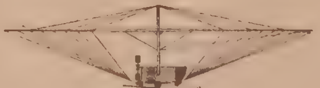
1860. — SMYTHIES. — Combinaison de plans inclinés et d'ailes à clapets actionnées par la vapeur.



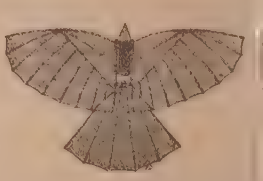
* **1863. — De PONTON d'AMÉCOURT** — Hélicoptère à vapeur. L'appareil expérimenté ne put que s'alléger sans parvenir à quitter le sol.



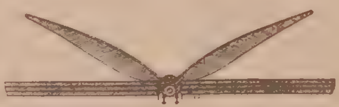
1863. — Cet appareil, attribué à **M. G. de la LANDELLE**, consiste en une combinaison d'hélices, de plans inclinés et de parachutes.



1863. — De LOUVRIÉ. — Aéroscaphe, genre de cerf-volant, actionné par une hélice ou directement par un moteur à mélange détonant produisant réaction sur l'air.

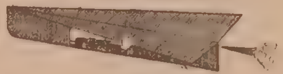


1864. — Comte d'ESTERNO. — Appareil dont les ailes et la queue peuvent imiter les différents mouvements de l'oiseau.

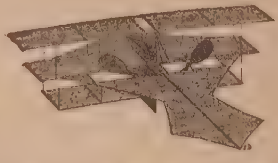


* **1867. — KAUFMANN.** — Système d'aéroplane à vapeur monté sur roues et combiné avec des ailes.

1867. — SMYTH — Aéroplane à hélices mues par un moteur à gaz.

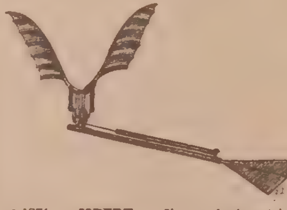


1867. BUTLER et EDWARDS. — Aéroplane à réaction. Le déplacement de la nacelle, en changeant le centre de gravité, doit faire monter ou descendre l'appareil.

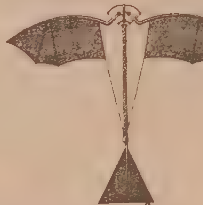


* **1868. — STRINGFELLOW.** — Système d'aéroplane à plans superposés et à hélices propulsives.

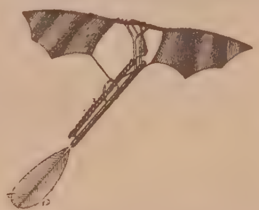
1871. — PRIGI
peur et dont les mouv
de la libellule.



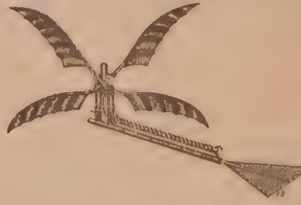
* **1871. — JOBERT.** — Oiseau mécanique à changement de plan automatique imitant la flexion naturelle de l'aile.



* **1872. — HUREAU de VILLENEUVE.** — Oiseau mécanique dont l'axe de rotation est incliné à 45°. Cet appareil, expérimenté devant la Société Française de Navigation aérienne, a volé avec une vitesse de 9 mètres par seconde.

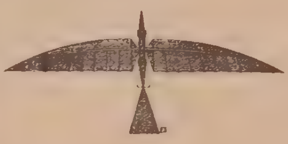


* **1872. — PÉNAUD.** — Autre genre d'oiseau mécanique, mais sans inclinaison de l'axe de rotation. Cet appareil a volé.

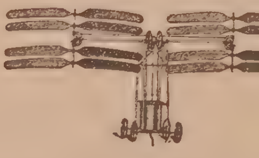


* **1872. — JOBERT.** — Oiseau mécanique à quatre ailes, dont le battement, au rythme du trot, produit l'équilibre de l'appareil.

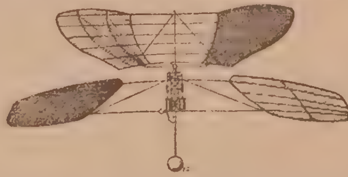
1874. — AC
rientation et d'un
mères.



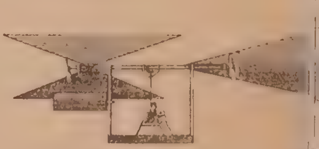
1877. — De LOUVRIÉ. — L'Anthropornis, ailes actionnées par la vapeur ou par un moteur à pétrole. Un ressort contribue à l'abaissement des ailes. L'appareil est monté sur roues.



* **1878. — CASTEL.** — Hélicoptère marchant par l'air comprimé, qui est amené par un tube flexible. Pendant l'expérience, l'appareil est allé se briser contre la muraille



* **1878. — FORLANINI.** — Cet hélicoptère, mû par la vapeur comprimée dans une sphère creuse, s'est enlevé à 13 mètres de hauteur. C'est le premier appareil à vapeur qui ait quitté le sol.



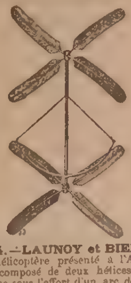
1878. — POMÈS. — Appareil composé de plans i
d'hélices mues par la force humaine.

CONSIDÉRATIONS. — La navigation aérienne sans ballons a fait, ces derniers temps, de grands progrès. La question aurait peut-être été résolue à l'époque actuelle, si les inventeurs et les travailleurs (généralement pauvres) avaient été secondés dans leurs efforts par des moyens pécuniaires. Nous possédons les éléments pour produire une machine à vapeur ne dépassant pas en poids 7 ou 8 kilogrammes par force de cheval-vapeur. Un moteur semblable est donc assez léger pour obtenir des résultats décisifs. Il ne reste donc qu'à l'appliquer à un appareil léger et intelligemment combiné. La nature fournit dans l'oiseau le modèle le plu
aurait dans un appareil mécanique imitant l'oiseau, à retr
tout autre système moins sujet au danger. Dans tous
naviguera dans l'air, sera simple de construction, et sans
partie de la force motrice.

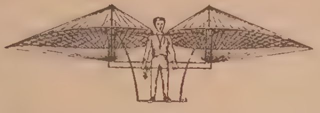
Paris. — Imprimerie Co

THE DEVELOPMENT
OF HEAVIER-THAN-AIR
MACHINES.

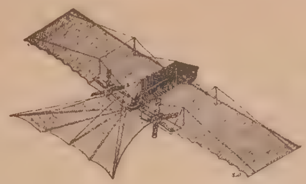
ÉRARD. — Appareil
u d'ailes, d'un gouvernail
ressort pour amortir le



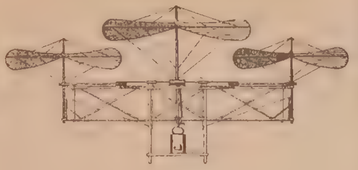
* **1784. — LAUNOY et BIENVENU.** — Premier hélicoptère présenté à l'Académie des Sciences, composé de deux hélices tournant en sens inverse sous l'effort d'un arc de baleine.



1806. — Jacob DEGEN. — Système d'ailes formant parachute. Cet appareil n'ayant pu s'enlever, l'auteur y ajouta, par la suite, un petit ballon.



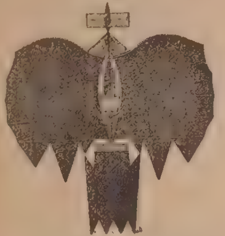
1842. — HENSON. — Système de plan incliné, monté sur roues. Les hélices sont actionnées par une machine à vapeur.



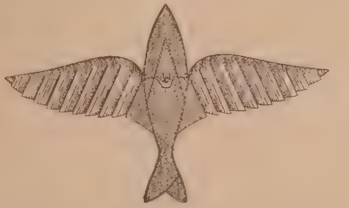
1845. — COSSUS.

Appareil composé d'hélices ascensionnelles mues par la vapeur.

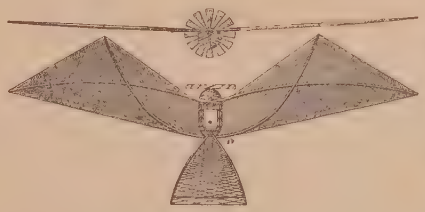
es. Les
tiques.



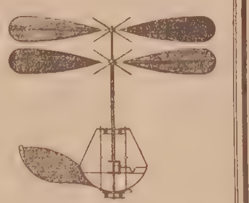
1856. — Viscount CARLINGFORD. — Genre d'aéroplane monté sur roues, possédant une hélice et une queue mobile.



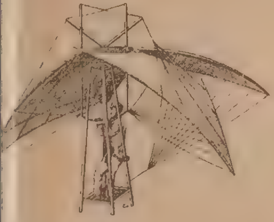
* **1857. — LE BRIS.** — L'auteur produisait l'abaissement des ailes à l'aide de leviers; des ressorts aidaient à les relever.



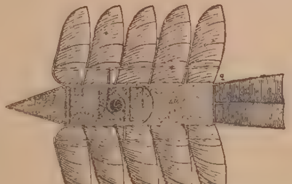
* **1857. — Du TEMPLE.** — Disposition d'aéroplane monté sur roues, avec une hélice à l'avant actionnée par la vapeur.



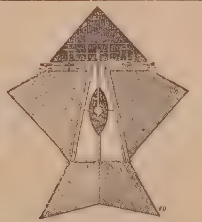
1859. — BRIGHT. — Système composé d'hélices ascensionnelles tournant en sens inverse.



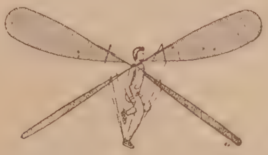
* **1864. — De GROOF.** — Appareil composé
es mues par trois leviers, et dans lequel l'auteur
va la mort.



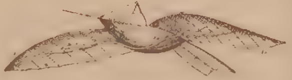
1864. — STRUVE et TELESCHEFF. — Ailes mues par la force humaine agissant sur un ressort.



1864. — CLAUDEL. — Aéronef orthoptère. Système d'ailes tournantes actionnées par la vapeur.

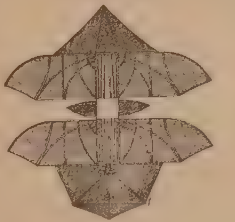


* **1866. — BOURCART.** — Appareil mû par les pieds. Dans cette disposition, l'aile se présente en tranchant pendant son relèvement, et à plat pendant son abaissement.

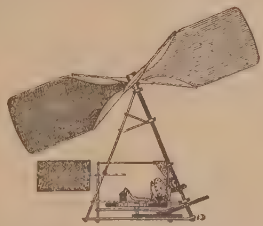


* **1867. — Le BRIS.** — Les ailes sont fixes, mais leur orientation convenable force l'appareil à s'enlever.

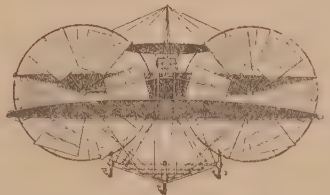
— Appareil mû par la va-
s sont basés sur le principe



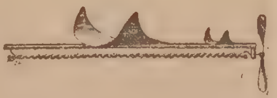
1871. — DANJARD. — Appareil formant parachute composé de deux ailes propulsives et d'une hélice, le tout mû par la force humaine.



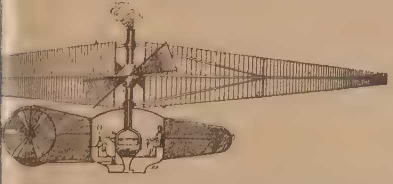
1871. — POMÈS et de la PAUZE. — Appareil pourvu d'un gouvernail et d'une hélice actionnée par un moteur à poudre.



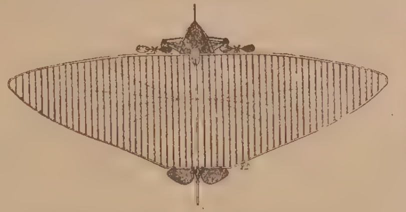
* **1871. — Thomas MOY.** — Système d'aéroplane monté sur roues et dont les hélices sont mises en mouvement par une machine à vapeur.



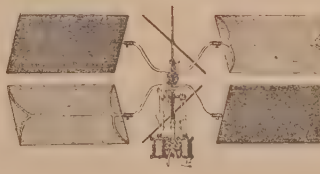
* **1871. — PÉNAUD.** — Premier aéroplane de l'auteur, dit planophore, composé de plans à bords relevés et d'une hélice mue par la torsion du caoutchouc. Cet appareil, qui peut monter ou descendre suivant la position de son centre de gravité, a pu franchir 60 m. en 13 secondes.



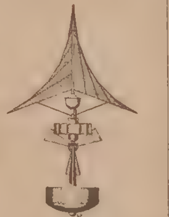
ACH. — Machine volante composée d'une hélice d'ascension, d'une d'o-
nail. La vapeur qui fait mouvoir les hélices agit directement sur ces der-



1876. — PÉNAUD et GAUCHOT. — Système d'aéroplane à vapeur pourvu d'hélices, d'un gouvernail et de roulettes à pattes flexibles.

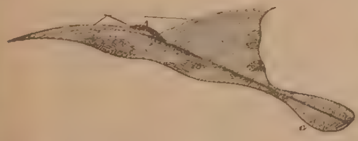


* **1877. — E. DIEUAIDE.** — Expérience sur l'hélice au moyen d'un tube flexible amenant la vapeur d'une chaudière fixe. L'hélice double ne paraît pas susceptible, à cause de la perte due aux engrenages, d'une force ascensionnelle de plus de 12 kilogrammes par cheval-vapeur.

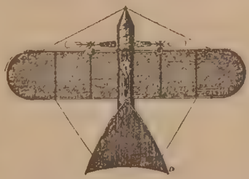


1877. — MÉLIKOFF. — Hélicoptère à vapeur d'ether. L'hélice est disposée pour former parachute.

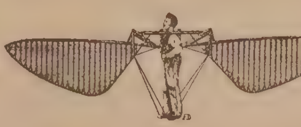
et



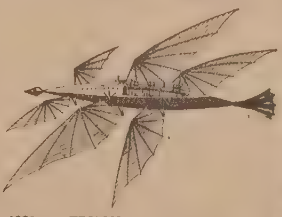
* **1879. — BREAREY.** — Système d'ailes flexibles mues par la vapeur. L'appareil est monté sur roues, et son centre de gravité est variable pour l'ascension ou la descente.



* **1879. — TATIN.** — Aéroplane à air comprimé monté sur roues et expérimenté à Meudon. A une vitesse de 8 mètres par seconde, cet appareil quitte le sol.



* **1879. — DANDRIEUX.** — Appareil disposé pour obtenir un allégement sur place. Les ailes se meuvent suivant un axe oblique, et le mouvement qu'elles font est à peu près celui du chiffre 8.



1880. — EDISON. — Projet d'un grand navire aérien pour faire le tour du monde. L'appareil est monté sur roues et les ailes sont mues par un moteur.

icace pour arriver au but; cependant, la difficulté qu'on
promptement le centre de gravité, oblige à rechercher un
as, il est probable que le premier appareil d'aviation qui
renages ou autres organes intermédiaires, soustrayant une

E. D.

E. DIEUAIDE, 18, Rue de la Banque. — PARIS.

Bureau pour les BREVETS, DESSINS, CONSTRUCTION D'APPAREILS

, passage du Caire, 95-97.

then existing confines of Paris. Their crossing of the Seine was pictured in the de Lorimier drawing, already referred to, which forms the frontispiece of Saint Fond's second volume. A similar print to Plate 12, issued by Basset, and given in Bruel, quotes the *procès verbal* signed after the ascent of the balloon; whilst Italian and German copies of one or other were also published.

As already stated, only one print appears to have been produced of the launch of the first balloon in England by Count Francesco Zambeccari from the Artillery Ground, Moorfields, on 25 November, 1783. This is included in Mr. J. E. Hodgson's forthcoming detailed history of British aeronautics, and is therefore not reproduced here. On the following day, the distinguished Swiss scientist, Aimée Argand, visited Windsor Castle and released a small hydrogen balloon in the presence of George III and the Queen, the scene being depicted in the two colour prints reproduced in Plate 13.

There are so many portraits of J. A. C. Charles, the Professor of Physics who was responsible for the successful inflation of balloons with hydrogen, that it is impossible to attempt to enumerate them. A crayon portrait in the possession of Messrs. Maggs, which may be the original of an engraving by S. C. Miger, although the engraving is not quite identical, is selected for reproduction here (Plate 14); and there is also a fine pastel in the collection of the Royal Aero Club; while Bruel reproduces an interesting plate with a vignette below of the enthusiastic scene when Charles and Robert landed at Nesles.

The occasion which produced the greatest profusion of prints was the second balloon journey of human beings, and the first in a hydrogen balloon, made by Charles and one of the brothers Robert from the Tuilleries on 1 December, 1783. The "I.L.A." Catalogue ["Katalog der Historischen Abteilung der Ersten Internationalen Luftschiffarts-Ausstellung (I.L.A.) Zu Frankfurt a.M. 1909" by L. Liebmann and G. Wahl, Frankfurt, 1912] which is the nearest approach to an iconography of aeronautical prints yet produced, enumerates some forty, and this by no means exhausts the list. The illustrations of the start reproduced here (Plates 15 and 16), have been selected for the special interest arising from the fact that both plates were used again to record another ascent, which will be referred to in its due chronological order (see Plates 43, 44 and 45). It may be mentioned that the appearance of the filling apparatus on the platform on the "basin" is historically inaccurate, as the balloon was, in fact, inflated under the shelter of the avenue of trees facing the Tuilleries Palace. This may be seen in a pretty little etching, *Vue Prise de la Grille du Chateau,* by Sergent-Marceau (not reproduced here), as well as in other prints. Another interesting, though somewhat crude, engraving, *Vue Prise du Pont Royal,* has below it a circular map of the routes covered by the first four balloons from Paris. The print reproduced in Plate 16 is after a wash drawing by Duperreux, which is in the Musée Carnavalet.

After covering a distance of twenty-seven miles in about two hours Charles and Robert descended near Nesles, where the *procès verbal* was signed by, amongst others, the Duc de Chartres and a "Gentilhomme anglais," Mr. Farrer, who rushed up to Charles on his arrival with the exclamation, "Moi, Charles, premier!" and was in such a state of excitement that he signed the *procès verbal* twice over in an almost illegible hand. Plate 17 shows Charles re-ascending alone for a journey lasting for a further thirty-five minutes, during which he reached a height estimated at 10,000 feet and suffered intensely from cold. The colour print here reproduced (Plate 18), is a highly imaginative picture of the triumphant return of the balloon to Paris the next day, showing it apparently still fully inflated with hydrogen and surrounded by flaming torches in dangerous proximity to the gas! Plate 19 gives an idea of two more (see Plate 5) of the delightful series by de Launay, after de Lorimier, which are perhaps the best of all ballooning prints, particularly in the coloured state.

Plate 20 is the most pictorial of several prints of the ascent of a large hot-air balloon called "Le Flesselle" from Lyons on 19 January, 1784, carrying seven persons, including Joseph (the elder) Montgolfier, Pilâtre de Rozier and Prince Charles de Ligne. In the Cuthbert Collection, of which Mr. J. E. Hodgson is now the fortunate possessor, there is another very similar print to this (but with the words "Vue de la Ville de Lyon" across the face of the plate, just above the row of hills, and bearing no imprint), which must be rare, though not so fine a print as that reproduced here; whilst a third, showing a detailed view of the scene of ascent, is given by Bruel.

Plates 21 and 22 are caricatures, the first presumably directed against the Charles and Robert balloon of 1 December, 1783; while in the second plate a later elongated balloon of the same inventors has been added to carry the irate father and his friends in pursuit of the runaway pair.

The illustrations forming Plate 23 are taken from a most remarkable collection of detailed drawings of the design of a balloon prepared by General Meusnier in 1784, and now forming a part of the valuable collection under the control of the Section Technique of the French Air Service at Chalais Meudon, near Paris. Lieutenant Meusnier (as he then was) read a " Mémoire sur l'équilibre des Machines Aérostatiques," before the Académie Royale des Sciences on 3 December, 1783, and these drawings represent the practical application of his theories. They form, in conjunction with his Mémoire, probably the most remarkable collection of documents in the whole history of aeronautics, since Meusnier foreshadowed every feature of the modern non-rigid airship. He was the first to propose the elongated, in place of the spherical, envelope, and was the inventor of the air-filled ballonnet to preserve its shape—both within six months of the first invention of the balloon. The foresight shown in the fifty or sixty drawings contained in the volume is truly amazing, and it is not too much to say that the development of the modern airship is directly due to Meusnier's genius.

The first balloon ascent in Italy took place from Milan on 25 February, 1784, and is pictured in the two illustrations forming Plate 24. These are taken from the " Opusculi di Agostino Gerli," published at Parma in 1785, which contains an account of the architectural work of the brothers Agostino, Giuseppe and Carlo Gerli. The Gerli brothers constructed the balloon to the design of Paulo Andreani, and it was launched from the garden of a villa at Moncucco, near Milan, belonging to Andreani's elder brother. The balloon, which carried Andreani and two of the Gerli, was of most elaborate construction, and a great advance on previous Montgolfières. The lower illustration shows the ascent and, in the left-hand corner, the balloon landing a short distance away after its five minutes' journey; whilst the upper picture depicts the admiration of the populace; the Villa di Moncucco, with the masts used during the filling process, being indicated by the letter " b " towards the right of the foreground.

As already mentioned, Jean Pierre Blanchard, after the failure of his own " heavier-than-air " machine, became an enthusiastic balloonist, and Plate 26 shows the details of the balloon used in his first ascent from the Champ de Mars on 2 March, 1784, when it was equipped with elaborate appliances for obtaining dirigibility, mostly adapted from the discarded flying machine. Just before the balloon left the ground Blanchard had an altercation with a young officer named Dupont de Chambont, who was so determined to accompany him that he drew his sword in an endeavour to enforce his wishes. This scene is depicted in a number of prints, in some of which the incident is for some reason attributed to Napoleon Buonaparte, though without foundation.

A considerable number of fans were painted with balloon scenes during the popular craze for aerostation in 1783 and 1784, and one of them, giving a representation of Blanchard's balloon, and contained in the Dollfus collection, is reproduced in Plate 25.

Interest in ballooning now spread to the provinces, and scientists all over France began to consider the possibilities of controlling direction. As early as December, 1783, the Académie des Sciences of Dijon discussed the subject and decided to raise a subscription for the purpose of building an " inflammable air " (hydrogen) balloon to carry two persons " pour essayer d'en diriger en marche." The responsibility for the design was entrusted to three members of the Académie —MM. de Morveau, Chaussier and Bertrand, and Plate 27 shows the balloon, which was tried on 25 April, 1784, with Guyton de Morveau and the Abbé Bertrand in the car—without much success from the point of view of following a desired course, partly owing to the breakage of one of the oars and the rudder. On a second ascent on 12 June it was claimed that some measure of control over direction was obtained, but this must have been very slight. In spite of the lack of success, this venture is particularly noteworthy as it represented the first genuinely scientific experiment towards the dirigible balloon, and shows how soon it was realised that the invention would be practically useless unless some measure of control could be achieved. A 224-paged book, with four plates, was published at Dijon in 1784, giving minute descriptions of this balloon and both ascents [" Description de l'Aérostate L'Académie de Dijon "].

" Le Bordelais," depicted in Plate 28, was an elaborately decorated balloon which was to have ascended from the Jardin Royal at Bordeaux on 3 May, 1784, piloted by Frederic Antoine de Grassi, a Dresden-born doctor, and Perier, a Bordeaux perfumer; but all attempts to inflate it completely failed. This failure had the tragic result of causing a riot, two of the participants in which were publicly hanged on the scene of the occurrence four days later.

Plate 29 is a decorative print of the first ascent at Strasbourg on 15 May, 1784 (not March as given in the print), when Adorne used a Montgolfière balloon; whilst Plate 30 is a picture of the notable ascent of a similar balloon from Lyons on 4 June, 1784. The balloon was named " Le Gustave," in honour of King Gustave III of Sweden, who was present and who appears to have taken a great interest in aerostation, being mentioned as having attended a number of ascents in France about this time. The occasion is noteworthy for being the first on which a woman went up into the air. The balloon was constructed by the Comte de Laurencin (one of the passengers in " Le Flessell," the only balloon to ascend previously at Lyons) in collaboration with Fleurant, an artist who also dabbled in science; but de Laurencin magnanimously gave up his place to a young Lyonnaise, Madame Tible, who was anxious to prove that courage was an attribute of ladies no less than of the sterner sex. Madame Tible provided a further novelty in balloon voyages by bursting into song to celebrate " the state of well-being and calm contentment which I imagine one would feel in no other situation." She obliged with " Je triomphe, je suis reine," from the opera " La Belle Arsène "; to which M. Fleurant gallantly responded with " Quoi, voyager dans les nuages."

All this time a fierce controversy raged—though it is difficult to understand now how the issue could ever have been in doubt—over the relative merits of the "rarefied air" balloon, invented by the Montgolfiers, and the "inflammable air," or hydrogen, balloon, first produced by Charles. Among the "Charlière" balloons was "Le Suffren," constructed by l'Evêque, a marine engineer, for a syndicate of inhabitants of Nantes. It ascended for the first time on 14 June, 1784—the experiment being repeated on 6 September—with Coustarde de Massi and Mouchet, professor of physics at Nantes College, in the car, from the garden of the Foundling Hospital. There appear to have been three prints issued of this ascent: one, of the balloon only, which, though it bears no imprint, was probably published at Nantes, and which promised "donner au Public sous 15 jours la vue du Nouveau batiment de l'hôpital des enfans trouvés d'où s'est élévé l'Aerostat"; the second (which is the promised print), issued at Nantes "chez Sebire" and also by Chereau in Paris; and the third, which is reproduced here (Plate 31), and has been selected because it shows the somewhat rudimentary apparatus used for filling the balloon. It will be noticed that one of the occupants is depicted as having lost his hat, which is seen falling, a touch of verisimilitude such as is often to be found in the early prints, presumably to bring home the truth of what otherwise might be thought to be a bald and unconvincing narrative. A painting by de Lorimier, which is probably the original after which this print was engraved, is in Sir Mortimer Singer's collection.

An experiment, which called forth more derision and caricature than perhaps any other, was an attempt of the Abbé Miolan and the well-known engraver Janinet to construct a Montgolfière balloon which was to achieve dirigibility and independent movement by means of letting jets of hot air escape from any one of four ports, or shutters, arranged round the meridan of the balloon, opened by pulling on cords from the car. Bruel reproduces a print giving what is probably an accurate representation of the balloon as it really appeared, and several of the caricatures, of which there are far too many to attempt to enumerate here. The collector may, however, be tolerably certain that any caricature of the period which contains as prominent figures a cat and a donkey was directed against Miolan and Janinet. It seems probable that the centre portion of Plate 32 was originally intended as a serious picture of the filling of the balloon (which was destroyed by fire during the inflation in the Luxembourg Gardens on 11 July, 1784), and that the caricature border was hastily added after the disaster and the print issued in this state. It was the irony of fate that Saint Fond, in writing of their forthcoming experiment, should have said: "These two natural philosophers are worthy of every encouragement."

Plate 34 is taken from a pretty little print, of which a very early trial proof is also contained in the Cuthbert collection, representing the ascent from St. Cloud of the first cylindrical balloon made by Charles and the brothers Robert in an endeavour to achieve control over direction; whilst Plate 33 shows the details of the balloon. The balloon was constructed at the instance of the Duc de Chartres (afterwards known as "Philippe Egalité"), the eldest son of the Duc d'Orleans who, it will be remembered, was among those who greeted Charles and Robert on their landing at Nesles during the first hydrogen balloon voyage on 1 December, 1783. Considerable assistance in the design was rendered by Meusnier, who has been referred to above; and the balloon incorporated an internal air-ballonnet at his suggestion—a feature which very nearly led to the deaths of all on board, as shortly after the start it fell down into the bottom of the envelope, completely blocking the opening which allowed the gas to escape as it expanded. Seeing that the balloon was in danger of bursting, the Duke, who was one of the occupants, with great presence of mind, made a hole in the envelope with the end of a flagstick. This brought the machine down, but sufficiently slowly for the travellers to escape unhurt. Curiously enough the descent was made beside a pond only a few hundred yards from Chalais Meudon, which was the scene of the construction of the first military balloons during the Franco-Austrian War in 1793, and remained, with the exception of a few years at the beginning of the nineteenth century, the chief centre of French military ballooning for the next 125 years. It is now the headquarters of the Section Technique of the French Air Service, and the home of a fine aeronautical museum, several of the contents of which are reproduced in these pages. Though perhaps irrelevant, it may not be uninteresting to recall that towards the end of his life François Rabelais held the living of Meudon, and remained there until he left to go to Paris two months before his death. An interesting feature of the *Vue des 24 Jets,* shown in Plate 34, is the indication of the balloon as it appeared in the air which may be discerned half hidden by the clouds in the top left-hand corner of the plate.

Plate 35 depicts the first balloon ascent made in Austria on 29 July, 1784, when J. Stürwer took up a hydrogen balloon from Vienna. In Plate 36 is shown the ascent of the Abbé Carnus and Louchet, professor of literature at Rodez, in the South of France, on 6 August the same year. The balloon landed in a tree, whereupon the Abbé got out and was much surprised on looking up after reaching the ground to see his companion up in the air continuing his journey. The Montgolfière had at once risen again on being relieved of his weight, and carried Louchet some little distance further before bringing him gently back to earth.

There is some reason for believing that the extraordinary looking object in Plate 37 really does represent the appearance of a balloon which was built by Count Moret, and announced to ascend from a garden in Chelsea on 11 August, 1784, the date given on the print being incorrect. The experiment proved abortive, as the balloon caught fire during inflation—a common and not altogether surprising experience with Montgolfière projects—and was completely destroyed by an infuriated mob who broke into the enclosure. This had the unfortunate result of causing the Governors of the Chelsea Royal Hospital to rescind their permission to Vincent Lunardi, one of the Secretaries to the Neapolitan Ambassador in London, to ascend from the grounds of the Hospital on the following day: a set-back which threw Lunardi into the depths of despair. All sorts of charges of imposture were levelled against Moret, though Lunardi himself speaks of it as a "misfortune," and it appears that Moret had in fact had some experience with hot-air balloons in Paris. The reason for believing that the balloon may actually have been constructed in the curious shape shown is that Herr E. Fuld, in his "Uit de Eerste Jaren der Luchtvaart in Nederland, 1700-1808," reproduces a Dutch print of a *Lucht-bal* launched in Holland on 11 December, 1783, which bears a very remarkable resemblance to Moret's balloon.

Moret's fiasco caused the postponement of Lunardi's attempt, and it was not till 15 September, 1784, that the first balloon voyage in England took place from the grounds of the Honourable Artillery Company, Moorfields. Lunardi described in great detail all the preliminaries and the journey itself in a series of letters to his guardian, the Chevalier Gherardo Compagni, which were subsequently published under the title " An Account of the First Aerial Voyage in England," many copies of which have as frontispiece the charming portrait of Lunardi by Bartolozzi, after Richard Cosway, which Mr. Hodgson is reproducing in his book. This ascent was one of the most prolific in the production of prints, perhaps the best being the large aquatint by Jukes, after J. Brewer, which also will be found in " The History of Aeronautics in Great Britain." Plate 38, from the collection at the Bibliothèque Nationale, is interesting because it is described as being engraved from the description of one who supervised the construction of the balloon.

The following three plates (Nos. 39, 40 and 41), are three states of the same print, which show the publisher's anxiety to keep abreast with the times. In the first state the Chelsea Hospital is shown with the Rotunda of Ranelagh Gardens on the right; while in the next state, though the hospital buildings remain, the rest of the landscape has been altered, probably to show some indeterminate spot, as Lunardi says nothing in his book as to any place being suggested for the ascent until the Artillery Ground was decided upon. In the final state the headquarters of the Honourable Artillery Company are clearly shown. This state was evidently not produced until after the ascent had actually taken place, as it shows the falling of one of the oars (to be used in an attempt to direct the course of the balloon), and of the flag, waved to show the people outside the ground that he was in the " gallery," as recorded by Lunardi. In addition to the Bartolozzi print already mentioned, there are a number of portraits of Lunardi. One, used as the frontispiece to his later book, " Five Aerial Voyages in Scotland," by Burke, after Nesmith, shows him in the uniform of an Honorary Member of the Honourable Artillery Company, a distinction which was conferred upon him after his first ascent; and another rather charming colour print issued by Hedges portrays also the dog and the cat which he took up with him on 15 September; the latter being landed at South Mimms in Hertfordshire, where he first touched ground, as "the poor animal had been sensibly affected by the cold, during the greatest part of the voyage." A stone erected to mark the place of Lunardi's final landing "in a spacious meadow, in the Parish of Stondon, near Ware, in Hertfordshire," may still be seen a couple of fields to the west of the London-Cambridge Road at High Cross.

Plate 42 is taken from an exceptionally fine impression in Dr. Poynton's collection, of the well-known aquatint by Valentine Green, after F. G. Byron, showing Lunardi's balloon on exhibition after the ascent in the Pantheon in Oxford Street. The original water-colour drawing of this picture was sold in the Gardner Collection at Sotheby's last year, and is now in the possession of Messrs. Gilbey, the present occupants of the Pantheon.

The next event of importance which is represented pictorially is the ascent of the second cylindrical balloon of the brothers Robert from the Tuilleries Gardens on 19 September, 1784. There are, again, a considerable number of prints of this balloon, of which three are represented here mainly for their intrinsic interest. Reference back to Plate 15, coupled with a close scrutiny of Plates 43 and 44, will reveal the fact that the foreground is in each case from the same plate, though the balloon is different. In Plate 15, which is the first state, it will be noticed that the filling apparatus is shown on the platform with smoke issuing from the top of the chimney and from the barrels. Examination of the other two plates will show that, though the filling aparatus has disappeared, the puffs of smoke have not been completely erased, while the two female figures which have been introduced but thinly disguise the traces of the chimney which may still be faintly discerned. The writer pointed this out, so far as two of the states were concerned, in his introduction to Part II. of "Bibliotheca Aeronautica"—the catalogue issued by Messrs. Maggs Brothers, which forms an interesting record of a large number of aeronautical books and prints—but is fortunate in being able to reproduce the third state also from the extraordinarily eclectic Cuthbert Collection. Plate 45 has a similar interest since it is the same engraving as Plate 16, with the cylindrical balloon inserted in addition to the original balloon of 1 December, 1783. This cylindrical balloon, with three occupants, made a remarkable journey from Paris to Bethune, remaining in the air for six and three-quarter hours.

Plate 46 represents the destruction by fire of Keegan's large Montgolfière in the grounds of Lord Foley's house in Portland Place, whence it was to have ascended on 19 September, 1784. The "two principal figures" in the foreground are probably Blanchard (the shorter figure) and Dr. John Sheldon, who was to have piloted the balloon. There are several caricatures of this ascent, two of which introduce the balloon in the shape of a fool's head, one being reproduced by Bruel; but here is selected a rather more interesting caricature (Plate 47), which represents the balloon passing the "Union Coffee-House," probably in Piccadilly, on its way to Foley House. The allusion in the text and in the small picture of a chariot drawn by geese are to Francis Godwin's "World in the Moon," which will be referred to later (see Plate 86).

A very interesting, and indeed romantic, account of the first crossing of the Channel by air on 7 January, 1785, was written by Dr. Jeffries, an American physician who accompanied Blanchard on the voyage, in "A Narrative of the Two Aerial Voyages of Doctor Jeffries with Mons. Blanchard," which, though rare, is still occasionally to be found, and has as frontispiece a well-known portrait of Jeffries in a leopard-skin hat. The upper picture in Plate 49 is one of several prints showing the balloon leaving Dover, whilst the lower reproduction is from a fine aquatint of the balloon low down over the French coast, shortly before the successful landing in the Forest of Guisnes.

Plate 48 is from an original painting belonging to Sir Mortimer Singer, which also shows the departure. This painting by E. W. Cocks, though possibly not contemporary, is interesting as having come from the collection formed by Robert Hollond, who accompanied Charles Green and Monck Mason in the famous balloon voyage from London to Weilburg in 1836.

Plate 50 is an anonymous print of one of the many French schemes for directing balloons, which has a particular interest because it bears a distinct resemblance to the project of Thomas

Martyn, who published, in 1783, "Hints of Important Uses to be derived from Aerostatic Globes originally designed in 1783," which is now one of the rarer English aeronautical books.

The coloured reproduction in Plate 51 is taken from a water-colour drawing by Dighton, in the Norman Collection at the Patent Office, showing the balloon in which Vincent Lunardi made his second ascent from St. George's Fields on 3 May, 1785; whilst Plate 52, which comes from the same source, shows the rescue of Richard McGuire from the Irish Sea after ascending from Dublin on 12 May, 1785. He had a narrow escape from drowning, having been in the water for forty minutes, and being (according to the contemporary account in the "European Mazagine") unconscious when the boats reached him. McGuire had at the last minute taken the place of the balloonist Crosbie, whose weight had proved too great for the balloon to take up, and was knighted for his exploit by the Lord Lieutenant on returning to Dublin, thus achieving the distinction of becoming the first Knight of the Air. It is perhaps not altogether irrelevant to describe the dress of Crosbie on a former occasion: "Mr. Crosbie's figure is genteel: his aerial dress consisted of a robe of oiled silk, lined with white fur, his waistcoat and breeches in one, of white satin quilted, and Morocco boots, and a Montero cap of leopard skin"—a description not to be marred by comment, which would inevitably prove inadequate.

The first martyrs to the science of aerostation were Pilâtre de Rozier, who had originally achieved fame as the first man to ascend in a balloon, and Romain. They attempted to emulate Blanchard and Jeffries by crossing the Channel in the reverse direction in a balloon which constituted a most dangerous combination: a hydrogen balloon above, with a Montgolfière carrying a fire in a brazier below. This combination was in point of fact safely employed by Zambeccari and Andreoli in Italy at a later date; but on this occasion disaster followed almost immediately the balloon had left the ground at Boulogne. The balloon is represented in several prints—notably two entitled "Tour de Calais" (the original painting for which is in Sir Mortimer Singer's collection), and "Vue de Calais' respectively—while the accident itself on 15 June, 1785, is shown in the print here reproduced (Plate 53). There is also an extremely interesting mezzotint showing the Montgolfière just catching fire, and the flame rushing up the appendix from the hydrogen balloon which hung down beside it; but unfortunately this is so dark a print that it would be almost impossible to reproduce. There are, in addition, prints showing the two bodies being removed from the wreckage, and representing Death attacking the balloon with a scythe.

It was arranged that Lunardi should take up George Biggin (who had been disappointed on his first voyage) and a famous beauty, Mrs. Sage, from St. George's Fields on 29 June, 1785, in the same balloon that he had used on 3 May; but when the time came the balloon proved incapable of lifting more than two persons, so Biggin and Mrs. Sage ascended alone. In spite of this, the prints of this ascent show all three occupants. Plate 54 is the second state (dated 25 June) of a plate, the first state of which (dated 13 May) has frequently been reproduced. The difference lies in Biggin (on the left of the picture) being without a hat in the first state, whereas he is shown wearing it in the state here reproduced, which also has the title *The Three Favourite Aerial Travellers* instead of the names of the three persons which were engraved on the first state. The collector should be warned that modern reproductions of both these plates are frequently met with. Plate 55 is a Spanish copy of an English print of the balloon, the inscription of which has evidently confused this ascent with a voyage from Liverpool, six weeks later, undertaken by Lunardi alone, and which also introduces an entirely mythical person (so far as can be discovered) in " Baron Dick."

There are three prints of the rescue of Major Money from the sea off the coast of Norfolk during the course of an ascent which he made from Norwich on 23 July, 1785, of which the best is the fine aquatint by Murphy, after Reinagle, reproduced here (Plate 56), from an open letter proof in the possession of Messrs. Maggs. In addition to this, there is in the Cuthbert Collection a large aquatint by an unknown engraver, of which M. Paul Tisandier also has a copy; but as both impressions are proofs before all letters, and the only other copy known to the writer, in the Patent Office, is cut, it is unfortunately impossible to give any further details. The third print is a small aquatint, usually coloured, by P. Sherlock, also after Reinagle.

Plates 57, 58, 60, 61 and 62 represent some of the numerous ascents of Blanchard all over Europe, many of which were commemorated by artistic prints, such as the two by Helman, after L. (not Antoine) Watteau, of the ascent from Lille with the Chevalier Lépinard (Plates 57 and 58). The coloured Hamburg print (Plate 61) is amusing, as the artist seems anxious to cram into the picture as many views as possible of the balloon in different positions. It is impossible to refer to all the prints of Blanchard's various ascents, but a practically complete list will be found in "Jean-Pierre Blanchard, Physicien-Aeronaute," by L. Coutil, published at Evreux in 1911.

The illustration reproduced in Plate 59 from the Bibliothèque Nationale is a picture of the balloon of Alban and Vallet (one of the numerous attempts at dirigibility) which made several ascents during the months of August and September, 1785.

After an unfortunate experience at Newcastle (when Mr. Heron, an attorney, was killed through the valve cord, in which he was entangled when the balloon ascended, breaking and causing him to fall from a height of 200 feet), Lunardi appears to have left England and gone to the Continent, where he made several ascents in Italy, Spain and Portugal. Plate 63 is reproduced from a Spanish etching of his ascent from Madrid in 1792.

During the French war with the Allies towards the close of the eighteenth century, several balloons were constructed at Meudon, and one of these, the "Entrepenant," after being used by Commandant Coutelle at Maubeuge and at the Siege of Charleroi, was taken by him to join the French army under Jourdan, and was used at the Battle of Fleurus on 26 June, 1794, when it assisted materially in the French victory. There are in all some six or seven prints of the captive ascent of this balloon during the battle, of which that by Le Beau, after Naudet, reproduced in Plate 64, is the best.

In an attempt to revive the public interest in balloon ascents, which was waning owing to their apparent lack of utility, all sorts of circus tricks and dangerous "stunts" were resorted to, of which ascents on horseback were among the most popular. The lower picture in Plate 65 shows such an ascent by Testu Brissy from Meudon, on 16 October, 1798, whilst there are also prints of Poitevin and Margat, who made several ascents seated on the back of a trained stag named "Coco." The upper picture on the same plate is a fantastic device for controlling direction put forward in all seriousness by Jakob Kaiserer in "Uber Meine Erfindung einen Luftballon durch Adler zu regieren," a book of which the "I.L.A." catalogue was only able to quote a reprint issued in 1903. The writer, however, was fortunate enough to be able to find a copy of the original edition of 1801, which now forms an item of the Carnegie Collection in the library of the Royal Aeronautical Society. The idea of using birds for assisting man to fly had, of course, been familiar from the time of Nimrod, but this appears to be the first suggestion for applying them as motive power for balloons. The same idea cropped up again in 1845, when a print signed "T. . . . née Vitalis," emanating from a Madame Tessiore, appeared, showing a balloon ("Force Ascensionelle") drawn by a vulture ("Force Directrice").

Plate 66 represents the first parachute descent in England on 21 September, 1802, when Garnerin, who had already made a descent in Paris, successfully landed by parachute. (See also Plate 73).

On 8 October, 1803, Zambeccari—who had been the first person to launch a balloon in England—with Andreoli and Grassetti, experienced a perilous journey in a combined Montgolfière and hydrogen balloon similar to that in which Pilâtre de Rozier met his death. They spent most of the night over the Mediterranean, and were rescued from the sea at 8 o'clock the next morning. Plate 67, from a proof before all letters belonging to Dr. Poynton, is an Italian picture of the rescue.

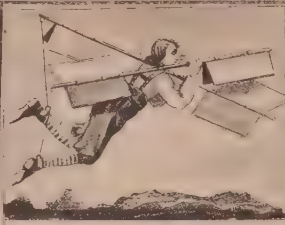
The coloured plate 68 is from a picture of one of the fêtes held in celebration of the coronation of Napoleon I. It is probable that Garnerin went up in the large balloon decorated with an eagle.

During the Napoleonic Wars, several schemes for attacking England from the air were produced. Bruel reproduces the well-known print, *Divers Projêts pour la Descente en Angleterre,* showing the French forces attacking in balloons and through a Channel tunnel, and also *La Thilorie,* which depicts an enormous Montgolfière carrying troops. The print reproduced in Plate 69 of about the same date (1803), is an early suggestion of a bombing attack from the air on the British Fleet.

In 1807 Jacob Degen, a Viennese watchmaker, produced a flying machine on the flapping wing principle, which is shown in scale-drawing form in Plate 70. Bruel shows the machine suspended from a balloon in the form in which it was tried—always without success—at various places in Paris during 1812. Many caricatures of this machine appeared, which may be recognised by the characteristic form of the apparatus.

One of the most famous, and in all probability the earliest, English aeronaut was James Sadler, an Oxford pastry cook, who made many ascents between 1784 and 1814. Six coloured prints were issued of his various ascents, of which two are reproduced here (Plates 71 and Frontispiece), and three will be found in "The History of Aeronautics in Great Britain." One of his most famous ascents was from the garden of the "Mermaid Tavern," at Hackney, accompanied by Captain Paget, on 12 August, 1811, of which two very similar woodcuts were issued, one of which (published by Thompson) was reproduced in Bruel, and the other, by Pitts, is given in Plate 72—the street hawker on the left selling prints of the balloon is to be noticed. There is also a third print of this ascent, frequently coloured, showing the balloon above houses, with a church tower in the background, published by I. Murray, Princes Street, Soho.

The first person to make a parachute descent, in Paris on 22 October, 1797, was A. J. Garnerin, who also made the first descent in England near St. Pancras Church on 21 September, 1802 (see Plate 66) : both of which were represented by several prints, mostly of a very crude description. Reproduced here is an uncommon print in the Cuthbert Collection, with a charmingly decorated border, giving portraits of Garnerin and his wife, who was also a well-known balloonist (Plate 73). Plate 74 depicts a parachute descent by Eliza Garnerin, Garnerin's niece, during the Peace celebrations of 1815. This print is interesting as it shows very clearly the method of attaching a weight to the top of the balloon, so that on the release of the parachute it is reversed and, quickly emptied of gas, comes to the ground.



Machine à voler de Mr. Le Besnier serrurier à Sablé (1673) *Ses chassis composés de deux parties jointes par des charnières s'ouvrent en les abaissant et se ferment en remontant. Le mouvement qu'on leur donne doit être régulier et alternatif.*

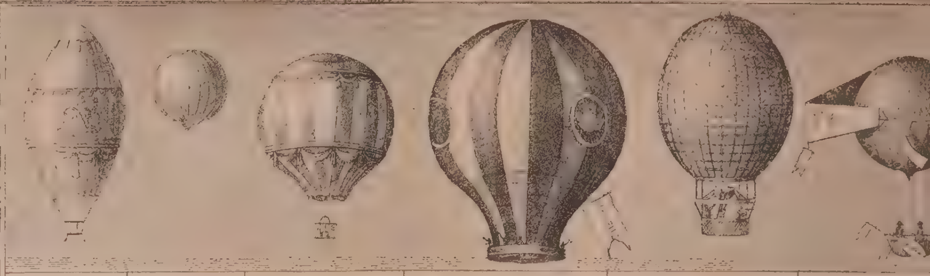
Le marquis de Bacqueville avait annoncé qu'il traverserait la Seine avec des ailes de son invention. Au jour fixé, il s'élança d'une terrasse de son hotel, Quai des Théatins. Son vol fut d'abord assez heureux, mais au milieu de la Seine il s'embarrassa et le marquis, tombant sur un bateau, se cassa la cuisse.

Le premier ballon de Charles et Robert, rempli place des Victoires, fut transporté la nuit au Champ de Mars précédé par le guet et la lueur des flambeaux. Les passants se saluaient à la vue de l'appareil inconnu. On vit des cochers de fiacre saisis de terreur descendre de leur siège et s'agenouiller.

Le ballon ci-dessus étant tombé près de Gonesse, les paysans le prennent pour un monstre d'une espèce nouvelle tombé du Ciel. Ils l'attaquent à coups de fusil et de fourche et finissent par l'attacher à la queue d'un cheval. Quelques uns s'imaginent que c'est la lune chue sur la terre.

Mort de Pilatre des Rosiers et de Romain.

Ce funeste accident eut lieu à 4 Kilomètres de Boulogne. Les malheureux aéronautes tombèrent de [illegible] mètres. Romain vivait encore des minutes. (Voyez ci-contre)



5 Juin 1783. *Première ascension d'une Montgolfière dirigée par Montgolfier à Annonay. — Elle ne portait personne et s'éleva à [illegible] mètres. — Circonférence 37 mètres, hauteur 12 mètres.*

27 Août 1783. *Charles et Robert font enlever au Champ de Mars le premier ballon gonflé au gaz hydrogène. Il ne portait personne et tomba à Gonesse. — Diamètre 3 mètres 70 centimètres.*

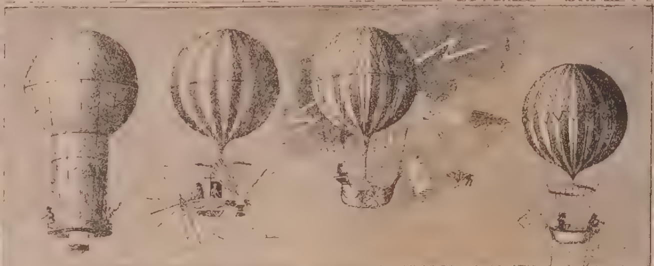
19 Septembre 1783. *Une Montgolfière lancée à Versailles emporte dans une cage d'osier un coq, un mouton et un canard.*

Les 15, 17 et 18 Octobre, Pilâtre des Rosiers et d'autres personnes s'élèvent à 1000 m. dans une Montgolfière captive.

19 Janvier 1784. *Une Montgolfière, la plus vaste qui se soit élevée dans les airs (42 mètres de hauteur sur 33 de diamètre) construite à Lyon, emporte dans sa galerie Montgolfier, Pilâtre des Rosiers, le prince de Ligne et quatre autres personnes. Elle descend à 3 kilom. de Lyon. Haut. ascensionnelle 1000 mètres.*

25 Février 1784. *A Turin, le chevalier Andreoli et les deux frères Gerli s'élèvent dans une Montgolfière construite avec une solidité remarquable et dont le réchaud était placé à une hauteur telle qu'il ne pouvait les incommoder. Diamètre horizontal 22 mètres, hauteur ascensionnelle 1500 mètres.*

25 Février 1784. *Aérost*
de Dijon monté par Guiton de
C'est le premier essai de **Direc**
Son appareil de direction consi
vent, un gouvernail et deux ra
l'appareil ne fonctionne pas, au
peu de succès.



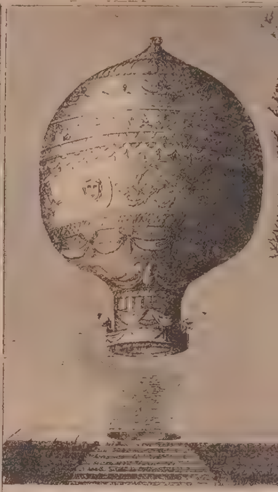
16 Juin 1785. *Avec 150,000 livres qu'il avait reçu du gouvernement Pilâtre des Rosiers fit construire un ballon à gaz auquel il eut la fatale idée d'ajouter un cylindre sous forme de Montgolfière. C'était placer le feu sous un baril de poudre. Ce ballon destiné à traverser la Manche prit feu et les deux aéronautes furent brisés sur la terre.*

25 Août, 17, 18 et 20 7bre 1785. *MM. Alban et Vallet directeurs de la fabrique de Javel font plusieurs essais de direction qui ont quelques succès mais par un temps calme seulement. Leur appareil présente la forme des ailes d'un moulin à vent.*

17 Juin 1786. *Testu-brissy s'élève à Paris, maltraité par les paysans inhospitaliers de Montmorency qui brisent ses rames, il remonte à 4,400 m., reste pendant 3 h. au milieu de la foudre. Après 11 h. de séjour dans l'air il descend à 10 myriamètres de Paris.*

1787. *Premre expérience du Parachute par Blanchard. Descente d'un chien. Elle est suivie de beaucoup d'autres.*

26 Juin 1794. *On avait établi à Meudon une école d'Aérostiers militres. De la nacelle d'un ballon captif, élevé à 500 mètres, on observait la position de l'ennemi et l'on transmettait des signaux qu'on faisait couler le long d'une corde. Cet appareil contribua au gain de la bataille de Fleurus.*

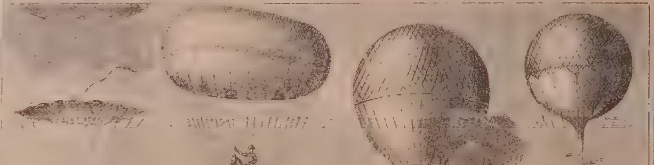


PREMIER VOYAGE AÉRIEN DANS UNE MONTGOLFIER

21 Novembre 1783. *Pilâtre des Rosiers et M. Darlandes par*
Château de la Muette bois de Boulogne. Leur Montgolfière, qu
24 mèt. de diamètre sur 26 de hauteur, descendit à la Butte aux
près la barrière de Fontainebleau. Hauteur ascensionnelle

THÉORIE D

L'air dilaté par la chaleur est plus léger que l'air froid. A [illegible] d
environ (88 centigr.) il acquiert une légèreté suffisante pour q
renfermé dans une vaste enveloppe il puisse enlever un fard
Telle est la pensée qui suggéra aux frères Montgolfier l'in
Joseph l'invention des Montgolfières. — Mais ce genre d'ae
présentait beaucoup d'inconvénients tels que la grande quan
combustibles à emporter, les vastes dimensions qu'exige
Montgolfières en raison du peu de différence du poids spé
de l'air comparé à celui de l'atmosphère, enfin le dang
feu, tant pour l'aérostat, tant pour les bois, les moissons, l
bitations rurales sur lesquelles il pouvait tomber.
On a donc abandonné ce moyen de locomotion aérienne



Octobre 1797. *Descente de Garnerin en parachute, dans la plaine de Monceaux. Le parachute fut séparé du ballon à 800 mètres de hauteur. Cette périlleuse expérience a été répétée à Paris en 1802 et 1832.*

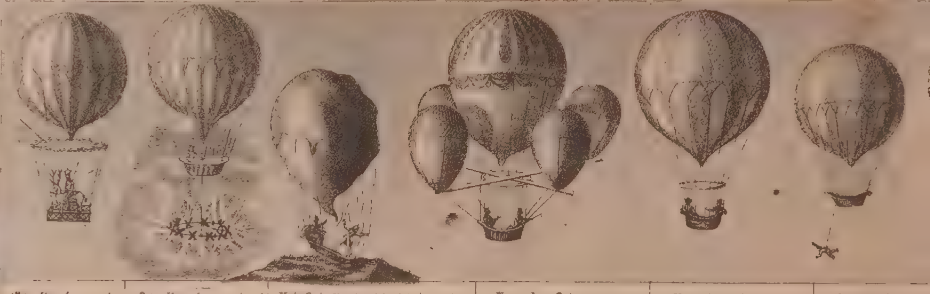
30 Octobre 1797. *Ascension équestre de Testu-brissy à Bellevue près Paris. Sur un plateau entouré d'une légère balustrade était le cheval qu'aucun lien ne retenait. — Il descendit près de Nanterre.*

25 Novembre 1802. *Ascension d'Olivari à Orléans. Les combustibles que contenait la galerie pour l'entretien du fourneau, prirent feu et le malheureux aéronaute précipité sur la terre, fut broyé.*

Le même accident arriva en Allemagne à Bittorf en 1812.

18 Juillet 1803. *Robertson qui fit en divers pays, 59 voyages aériens, s'enlève à Hambourg avec un savant nommé Lhoest. Ils s'élèvent à 6000 mètres.*

C'est le premier voyage qui ait donné lieu à des observations scientifiques.



1823. *L'une des ascensions de Mr Margat à Paris. Cet Aéronaute était monté sur le cerf Zéphire qui était libre sur une plate-forme comme le cheval de Testu-brissy.*

1819. *L'une des ascensions de Mme Blanchard. Au dessous de la nacelle était une couronne d'artifices à laquelle elle mettait le feu. Ce fut l'occasion de sa mort. (Voyez la vignette à droite.)*

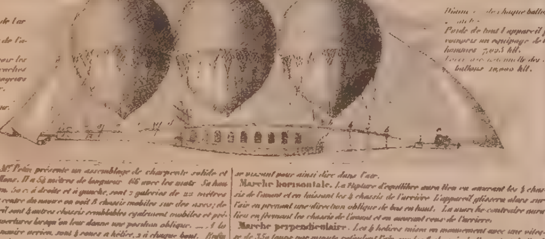
Mai 1824. *Harris officier de la Marine Anglse ayant laissé échapper trop de gaz par la soupape, le ballon s'abaissa rapidement et le choc de la nacelle fut si terrible qu'Harris perdit la vie, tandis qu'une jeune dame qui l'accompagnait ne fut que légèrement blessée.*

7 Novembre 1824. *Flottille Aérienne de Mr Dupuis Delcourt accompagné de Mr Richard. Il fait une ascension à Montjean près Paris. — Le 13 Aout 1827, il en fait une mémorable avec Waschi-rahe Chef des guerriers Indiens.*

7 Novembre 1836. *Voyage du célèbre Aéronaute Green de Londres à Weilburg (Duché de Nassau.) Le 31 Mars 1850 il traversa la Manche avec le duc de Brunswick et descendait à Neufchatel (Seine Inf.)*

16 Juillet 1843. *Le ball*
de Kirch à Nantes ayant romp
son amarre, un enfant qu'i
crampon de la nacelle accro
à la ceinture est enlevé à
et transporté à 1 kil. dans les
rière où il tombe sans acciden

SYSTÊME PETIN



Legende.
a a a a, les 3 chassis de l'arrière ouverts.
b b b b, les 4 chassis de l'avant fermés.
Note. *On ne peut voir les 8 chassis du milieu cachés par la galerie des voyageurs de 22 mèt. de longueur.*
c c Turbine
d d Machines à vapeur.

Diamètre de chaque ballon [illegible] mèt.
Poids de tout l'appareil y compris un équipage de 8 hommes 7,023 kil.
Force ascensionnelle des 3 ballons 10,000 kil.

Le navire aérien de Mr Petin présente un assemblage de charpente solide et légère, suspendu à 3 ballons. Il a 58 mètres de longueur, 66 avec les mats. Sa hauteur au centre est de 2 m. 50 c. A droite et à gauche, sont 2 galeries de 22 mètres pour les voyageurs. Au centre du navire on voit 8 chassis mobiles sur des axes; de chaque côté de cet appareil sont 4 autres chassis semblables également mobiles et présentant entr'eux des ouvertures lorsqu'on leur donne une position oblique. — A la proue et à la poupe du navire aérien, sont 4 roues à hélice, 2 à chaque bout. Enfin des voiles latines ou carrées sont placées à l'avant et à l'arrière du navire.

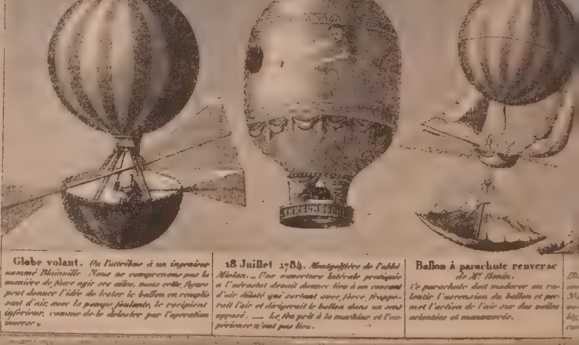
Les 8 chassis mobiles du milieu forment le centre de résistance, ou le point d'appui du navire. Ils servent suivant leur position de toits culminants ou de toits convexes d'appui sur les couches inférieures ou sur les couches supérieures de l'atmosphère. — L'office des chassis latéraux est de rompre l'équilibre de cette surface d'appui, ce qui a lieu lorsqu'une Série est ouverte et l'autre fermée. — Les 4 roues à hélice imprimeront au navire un mouvement de traction en avant en se vissant pour ainsi dire dans l'air.

Marche horizontale. *La rupture d'équilibre aura lieu en ouvrant les 4 chassis de l'avant et en laissant les 4 chassis de l'arrière. L'appareil glissera alors sur l'air en prenant une direction oblique de bas en haut. La marche contraire aura lieu en fermant les chassis de l'avant et en ouvrant ceux de l'arrière.*

Marche perpendiculaire. *Les 4 hélices mises en mouvement avec une vitesse de 350 tours par minute refoulent l'air sur les 8 chassis de l'avant et de l'arr. placés dans une position oblique. Ces chassis décomposent la force de l'air lancé horizontalement en une force de pression perpendiculaire et suivant le sens de leur inclinaison font monter ou descendre le navire.*

La Marche latérale, *pour virer de bord, s'opère en suspendant la marche de deux hélices et en laissant fonctionner les deux autres.*

Deux machines à vapeur de la force de 3 chevaux chacune serviront de moteur; les voiles utiliseront la force des vents et aideront à louvoyer.



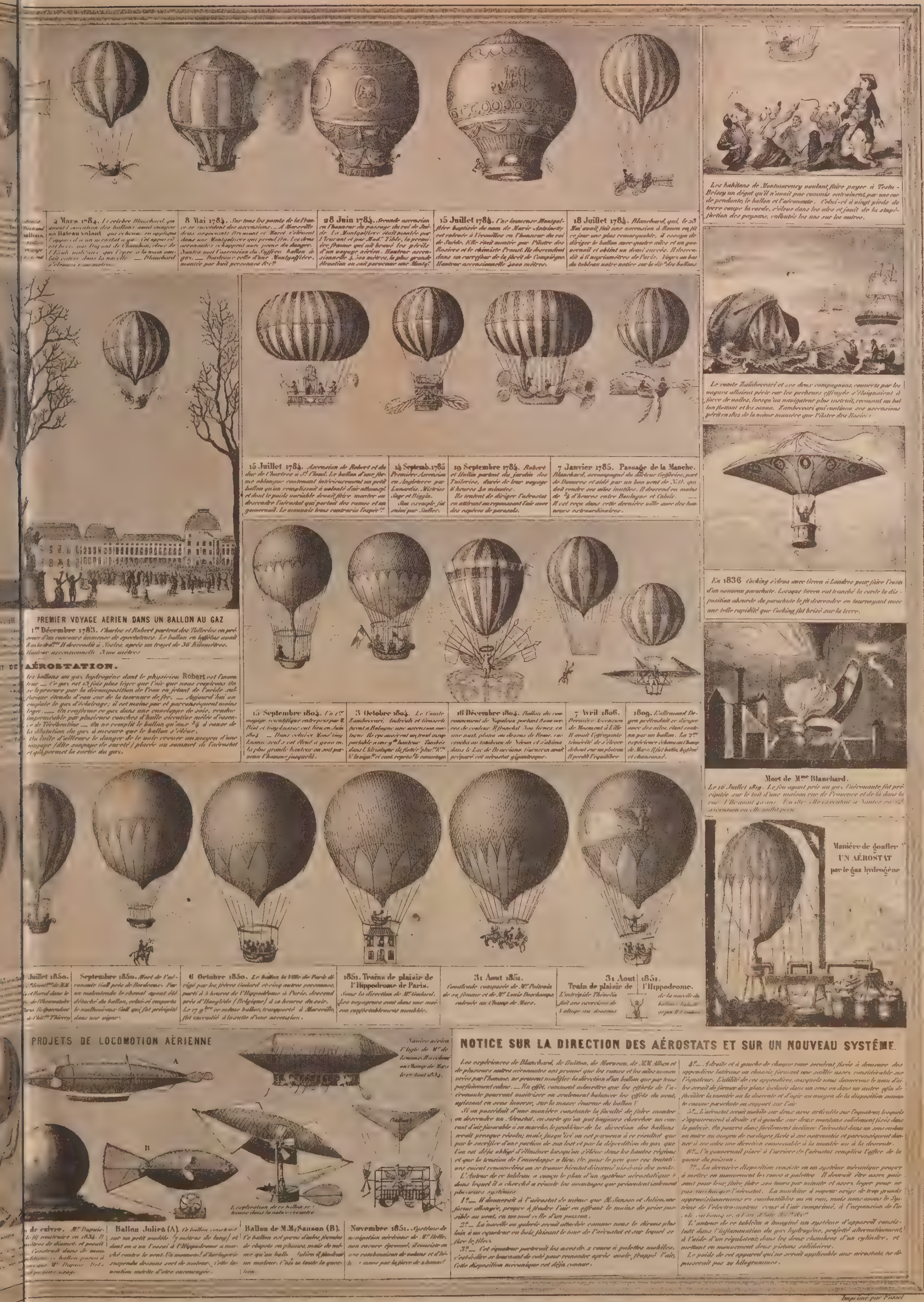
Globe volant. *On l'attribue à un ingénieur nommé Blainville. Nous ne comprenons pas la manière de faire agir ses ailes, mais cette figure peut donner l'idée de lester le ballon en remplissant d'air, avec la pompe foulante, le récipient inférieur, comme de le délester par l'opération inverse.*

18 Juillet 1784. *Montgolfière de l'abbé Miolan. — Une ouverture latérale pratiquée à l'aérostat devait donner lieu à un courant d'air dilaté qui sortant avec force, frapperait l'air et dirigerait le ballon dans un sens opposé. — Le feu prit à la machine et l'expérience n'eut pas lieu.*

Ballon à parachute renversé de Mr Henin.

Ce parachute doit modérer ou ralentir l'ascension du ballon et permet l'action de l'air sur des voiles orientées et manœuvrées.

Gravé par Langevin.


4 Mars 1784.
8 Mai 1784.
28 Juin 1784.
15 Juillet 1784.
18 Juillet 1784.
Les habitans de Montmorency voulant faire payer à Testu-Brissy un dégat qu'il n'avait pas commis entrainent par une corde pendante, le ballon et l'aéronaute. Celui-ci à vingt pieds de terre coupe la corde, s'élève dans les airs et jouit de la stupéfaction des paysans, culbutés les uns sur les autres.
PREMIER VOYAGE AERIEN DANS UN BALLON AU GAZ
1er Décembre 1783.
AÉROSTATION.
15 Juillet 1784.
14 Septemb. 1785
19 Septembre 1784.
7 Janvier 1785. Passage de la Manche.
En 1836
15 Septembre 1804.
3 Octobre 1804.
16 Décembre 1804.
7 Avril 1806.
1809.
Mort de Mme Blanchard.
Manière de gonfler UN AÉROSTAT par le gaz hydrogène
Juillet 1850.
Septembre 1850.
6 Octobre 1850.
1851. Trains de plaisir de l'Hippodrome de Paris.
31 Aout 1851.
31 Aout 1851. Train de plaisir de l'Hippodrome.
PROJETS DE LOCOMOTION AÉRIENNE
A
B
Ballon Julien (A).
Ballon de M.M. Sanson (B).
Novembre 1851.
NOTICE SUR LA DIRECTION DES AÉROSTATS ET SUR UN NOUVEAU SYSTÈME
Imprimé par Fissel

THE DEVELOPMENT
OF LIGHTER-THAN-AIR
MACHINES.

In 1816, Samuel Paully and Durs Egg, a gunmaker of Pall Mall, started to construct "The Dolphin," a fish-formed balloon which contained some interesting features, of which Mr. Hodgson is publishing a print dated 1835. Plate 75 is from a contemporary caricature of this balloon, which imagines it leaving England for India and various foreign countries. The actual balloon itself is faithfully represented, judging from the other print.

Plate 76 is an uncommon print of an ascent made by Eugène Robertson, the son of a more famous father, from New York in 1826, with a form of balloon, consisting of a number of small balloons instead of one large one, which was at one time popular, and may, without too great a strain of language, be described as the forerunner, in some sense, of the modern rigid airship with its multiple gas-bags. The first record of a balloon of this sort (though its authenticity is denied in a pamphlet entitled "The First Balloon Hoax," published in 1911) is in connection with the ascent of a carpenter named James Wilcox from Philadelphia on 28 November, 1783, in a car suspended from four small balloons connected together. The same idea was also employed by Blanchard in some of his ascents, and, later, by Margat and Dupuis-Delcourt, who was associated with Eugène Robertson in France.

Charles Green was the leading spirit in British ballooning from 1821 until 1852, and made a total of over five hundred ascents, including the remarkable voyage familiar from the well-known print, *A Consultation Previous to an Aerial Voyage from London to Weilburg in Nassau.* Besides the fine portrait here reproduced (Plate 77), there is a smaller stipple engraving by G. P. Harding. Plate 78, showing one of several equestrian ascents made by Green, is from a special impression on India paper in the Cuthbert Collection of a woodcut which was used for handbills and posters. It may be mentioned here that John Cuthbert, who formed this collection in the early years of the nineteenth century, appears to have made a practice of obtaining special impressions of various engravings and woodcuts from the printers, as the collection contains quite a number of them. It was Green who ascended in the balloon appearing in Plate 79, at the opening of New London Bridge on 1 August, 1831, of which there are some five or six other prints, including a pretty little coloured aquatint from " La Belle Assemblée."

Plate 80 is reproduced from an exceptionally fine and highly coloured impression in the Cuthbert Collection of O'Connor's lithograph of G. Graham's ascent at the opening of New Hungerford Market, on 2 July, 1833, of which there is another lithograph by I. S. Templeton, after R. W. Billings, showing the balloon just leaving the ground inside the courtyard. There are a number of prints of various ascents of Graham and his wife, Margaret Graham, between 1823 and 1852, including an interesting example, published by Ackermann, showing their " Victoria and Albert " balloon colliding with the house of Colonel North at 16, Arlington Street, Piccadilly, and demolishing a chimney pot, in which accident they both received injuries.

The " Vauxhall Royal Balloon " (Plate 81) was constructed by the proprietors of Vauxhall Gardens, and made its first ascent from there, piloted by Charles Green, on 9 September, 1836. This balloon subsequently made the famous voyage from London to Weilburg in November of the same year, and was afterwards re-christened " The Great Nassau Balloon," continuing in use at any rate until it was wrecked during inflation preparatory to a scientific ascent on behalf of the British Association at Wolverhampton on 15 August, 1859. Green was also in charge of this balloon when it ascended on 24 July, 1837, with the ill-fated Robert Cocking suspended below in a special form of parachute, which unfortunately collapsed as soon as it was released, with the result that Cocking fell to the ground and was killed. This caused a tremendous sensation at the time, and many pictures of the parachute appeared (notably woodcuts in " The Mirror " and " The Casket " and other crude woodcuts, coloured and uncoloured, of both Cocking and the parachute), including that reproduced in Plate 82, and a caricature (strangely reminiscent of the one referred to earlier in connection with the death of Pilâtre de Rozier and Romain) depicting Death cutting with a scythe the cord connecting the parachute with the balloon.

The direct precursor of the modern aeroplane was the " Ariel," which was projected in 1843 by W. S. Henson in conjunction with John Stringfellow, whose work is fully described in Volume 5 of "The Aeronautical Classics," published by the Aeronautical Society in 1910. There are many prints of this machine over London (reproduced by Mr. Hodgson), over the Pyramids (Plate 83), and in Germany; as well as letter-headings, handkerchiefs, etc. The best is the coloured aquatint selected by Mr. Hodgson, next to which comes that reproduced here, of which there was an inferior copy issued without the last two lines of text. This print has also been reproduced, and the collector is therefore warned to be cautious.

Plate 84, which probably dates from the beginning of the nineteenth century, is an interesting forecast of the recently-developed aeroplane-carrying airship, and we may yet see commercial airships launching gliders to land passengers at intermediate points on a non-stop journey. Plate 85 is characteristic of the many political and other caricatures embodying ideas culled from aircraft, of which there were far too many to be enumerated here—the chief English caricaturists who touched on the subject being Cruikshank, Rowlandson, Gilray, and "Shortshanks." There are, for example, a number of prints by various hands bearing the title *The March of Intellect, Prime Bang Up at (Hackney) . . . .*, etc.

The subject of flying has naturally appealed to the romantic writer of all ages. Here is reproduced an illustration from "The Voyage and Adventures of Domingo Gonzales to the World in the Moon" (by Francis Godwin, Bishop of Hereford). This particular illustration (Plate 86), from the 2nd Edition published in 1786, is unusual in the insertion of demons attacking the adventurer, a feature which is absent from all the other manifestations of the plate. There are also reproduced (Plate 87) two illustrations from the Amsterdam [1699] edition of Cyrano de Bergerac's familiar "Voyages to the Sun and Moon."

The two double-page plates in the text represent historical progress in heavier-than-air machines and balloons down to 1880 and 1851 respectively. The former (pages 9-12) is usually to be found with the name "E. Dieuaide" and the address crossed through and replaced by the impression of a rubber stamp bearing the words "Ch: Faber Ingenieur E.C.P. 33 Rue Joubert Paris"; and has not, so far as can be ascertained, previously been reproduced in its original form. The *Maison Basset* plate (pages 29-32) is probably novel so far as reproduction is concerned; and in fact the author has not seen another copy, though doubtless there must be many still in existence.

It would be impossible to conclude without paying a warm tribute of gratitude to two gentlemen in particular. Mr. J. E. Hodgson not only generously made available the Cuthbert Collection (in circumstances which might well have justified him in confining reproductions from it to his own projected book), but has given invaluable advice and assistance in every direction, including reading the greater part of the text in manuscript. M. Charles Dollfus, whose knowledge of aeronautical prints is unrivalled, with great courtesy devoted the whole of his time during the author's visit to Paris to showing the various collections in that city; besides making available his own collection, which is unquestionably the finest in France, or probably anywhere else.

Thanks are also due to Dr. F. J. Poynton, Sir Mortimer Singer, Messrs. Maggs Bros., H. M. Patent Office, the Royal Aeronautical Society and the Authorities of the Bibliothèque Nationale, the Musée Carnavalet, and the Chalais Meudon Museum for so readily permitting the author to select illustrations from their collections.

Finally it may be placed on record, for reference purposes, that the dimensions of prints given—except where from the nature of the print this was manifestly impossible—are of the pictorial portion of the plate only, apart from the text, as it was felt that this would make identification possible even in the case of " cut " impressions. For the sake of legibility it was also decided to print separately the text accompanying the prints rather than incorporate it in the reproduction; as when the latter course is followed, though there is a gain in pictorial effect, the lettering is inevitably so much reduced in size as to be almost wholly illegible. It is only fair to the possessors of the original impressions to add that this system does not imply that reproductions have been made from prints with cut margins; the only cases where lettering has been taken from other impressions being where the originals are proofs before letters.

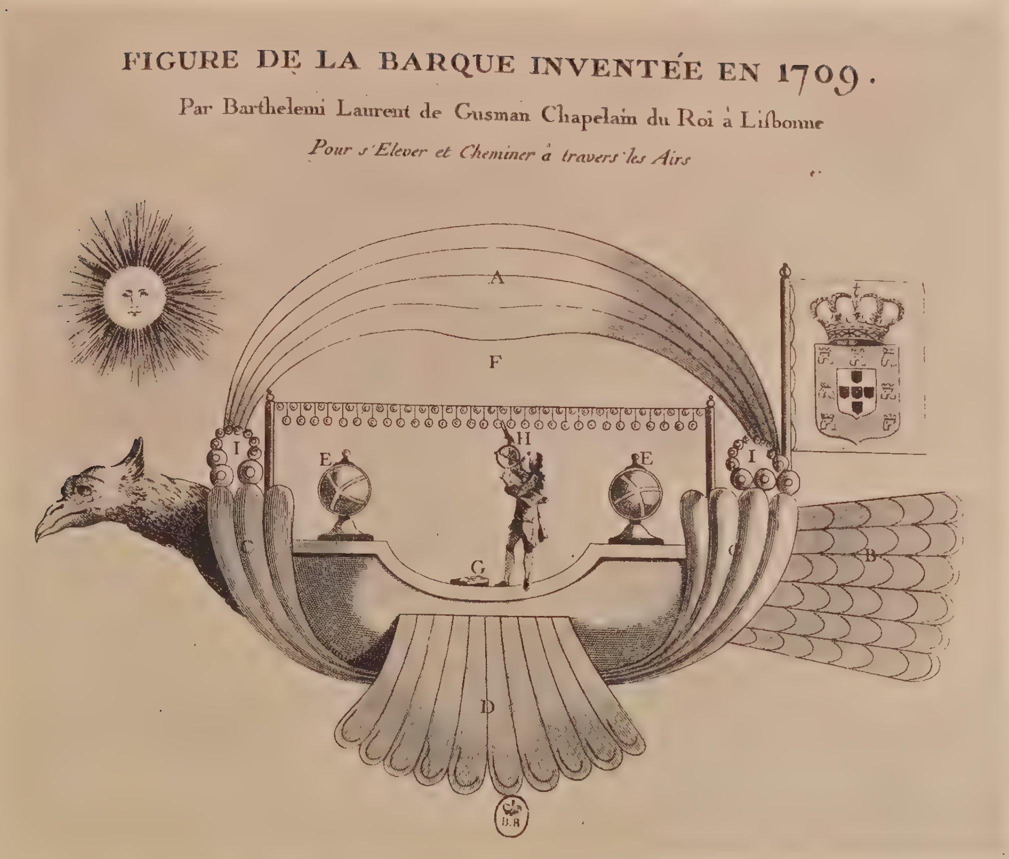


FIGURE DE LA BARQUE INVENTÉE EN 1709.
Par Barthelemi Laurent de Gusman Chapelain du Roi à Liſbonne
Pour s'Elever et Cheminer à travers les Airs
A
F
H
I
I
E
E
G
C
C
B
D
B.N.

PLATE 1. AN EARLY PORTUGUESE PROJECT. 1709
(8 × 11½ in.)
From an impression in the Bibliothèque Nationale, Paris

PLATE 2. BLANCHARD'S FLYING MACHINE—A FORECAST. 1782
First state of Plates 6 and 7. (14¼ × 10¼ in.)
From an impression in the Bibliothèque Nationale, Paris

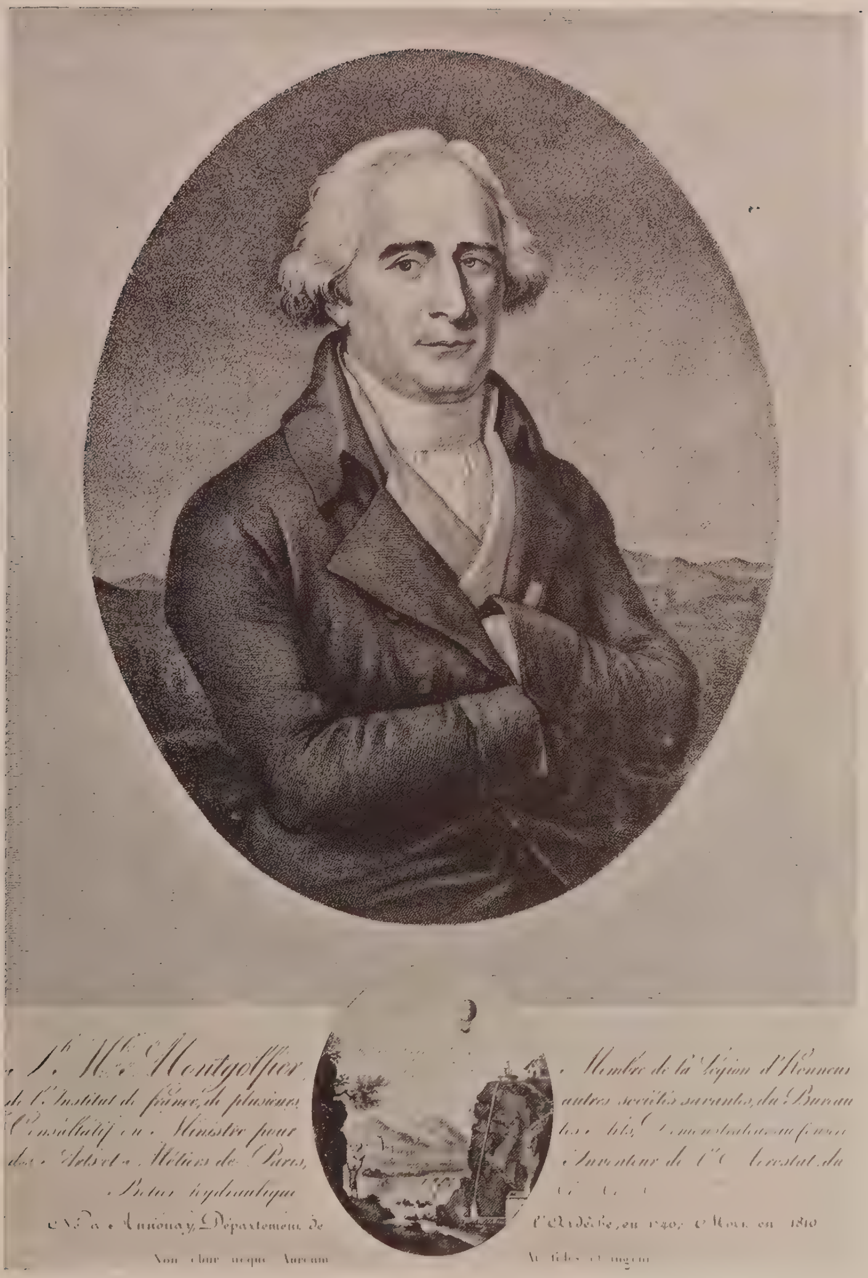

J. M.el Montgolfier, Membre de la légion d'Honneur
de l'Institut de france, de plusieurs autres sociétés savantes, du Bureau
Consultatif au Ministre pour
des Arts et Métiers de Paris, Inventeur de l'Aérostat du
Belier hydraulique
Né à Annonay, Département de l'Ardèche, en 1740, Mort en 1810

PLATE 3. JOSEPH MICHEL MONTGOLFIER
($13 \times 8\frac{3}{4}$ in.)
From an impression in the possession of the Author

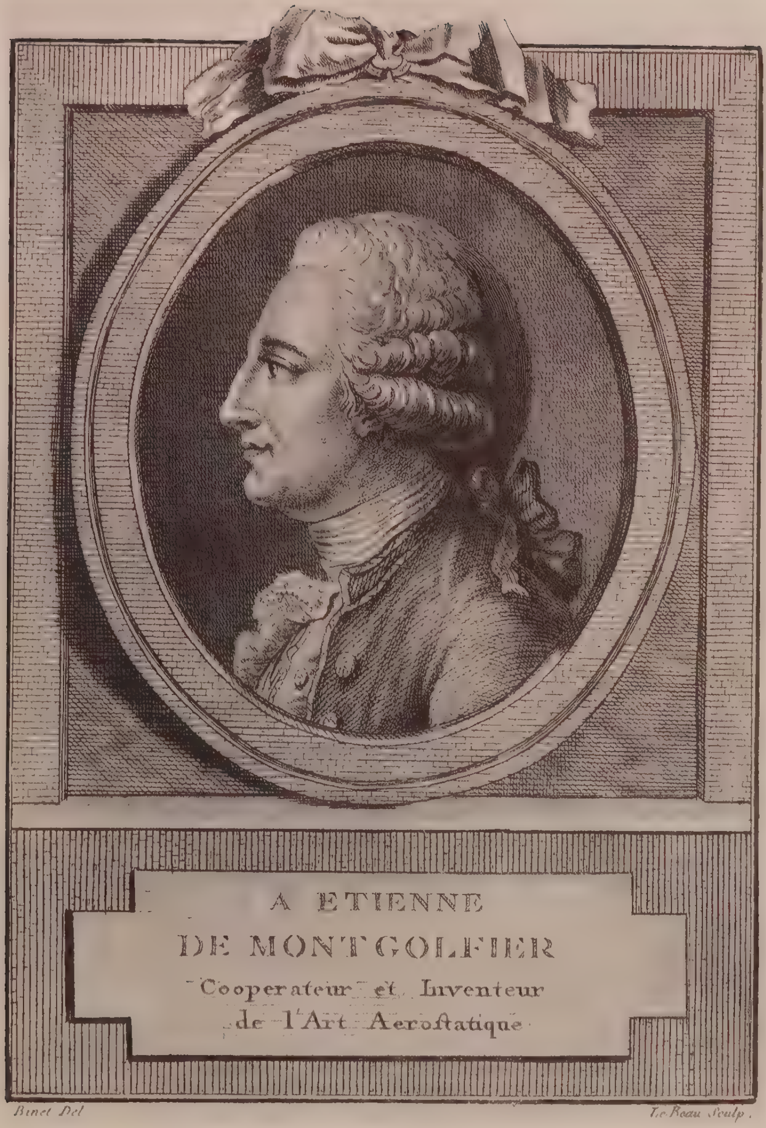
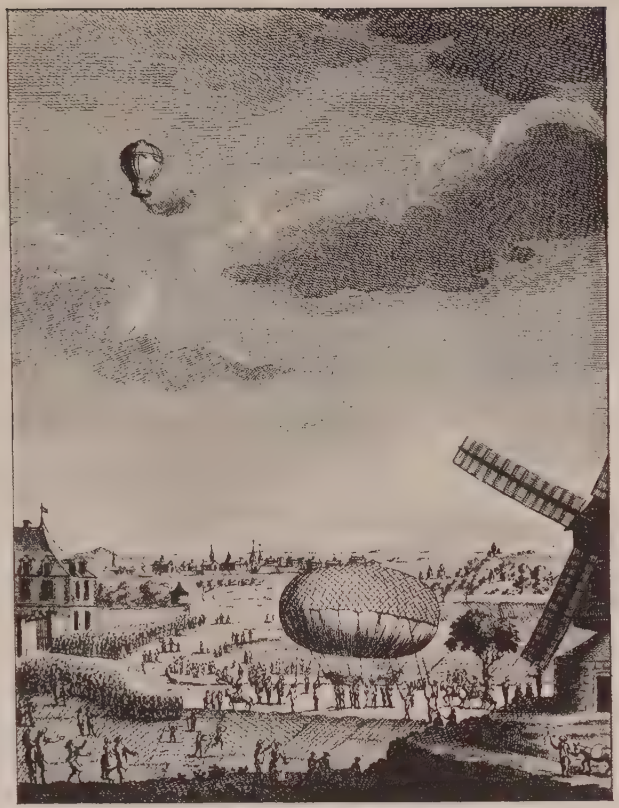
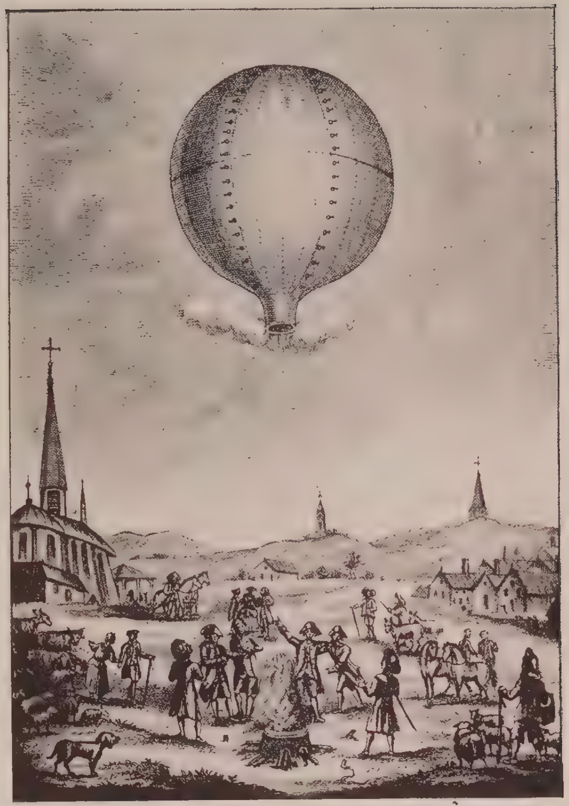


PLATE 4. JACQUES ETIENNE MONTGOLFIER
(6½ × 4¼ in.)
From an impression in the possession of Messrs. Maggs Bros.



MONTGOLFIER AND CHARLES BALLOONS. 1783
(4¾ × 3¼ in.)
After a drawing by de Lorimier. (Dollfus Collection)



THE FIRST BALLOON ASCENT FROM ANNONAY. 1783
(4¾ × 3¼ in.)
After a drawing by de Lorimier. (Dollfus Collection)

PLATE 6. THE FIRST HYDROGEN BALLOON. 1783
Second state of Plates 2 and 7. (14 × 10 in.)
From an impression in the possession of the Author

PLATE 7. THE FIRST HYDROGEN BALLOON. 1783
Third state of Plates 2 and 6. (14 × 10 in.)
From an impression in the Cuthbert Collection

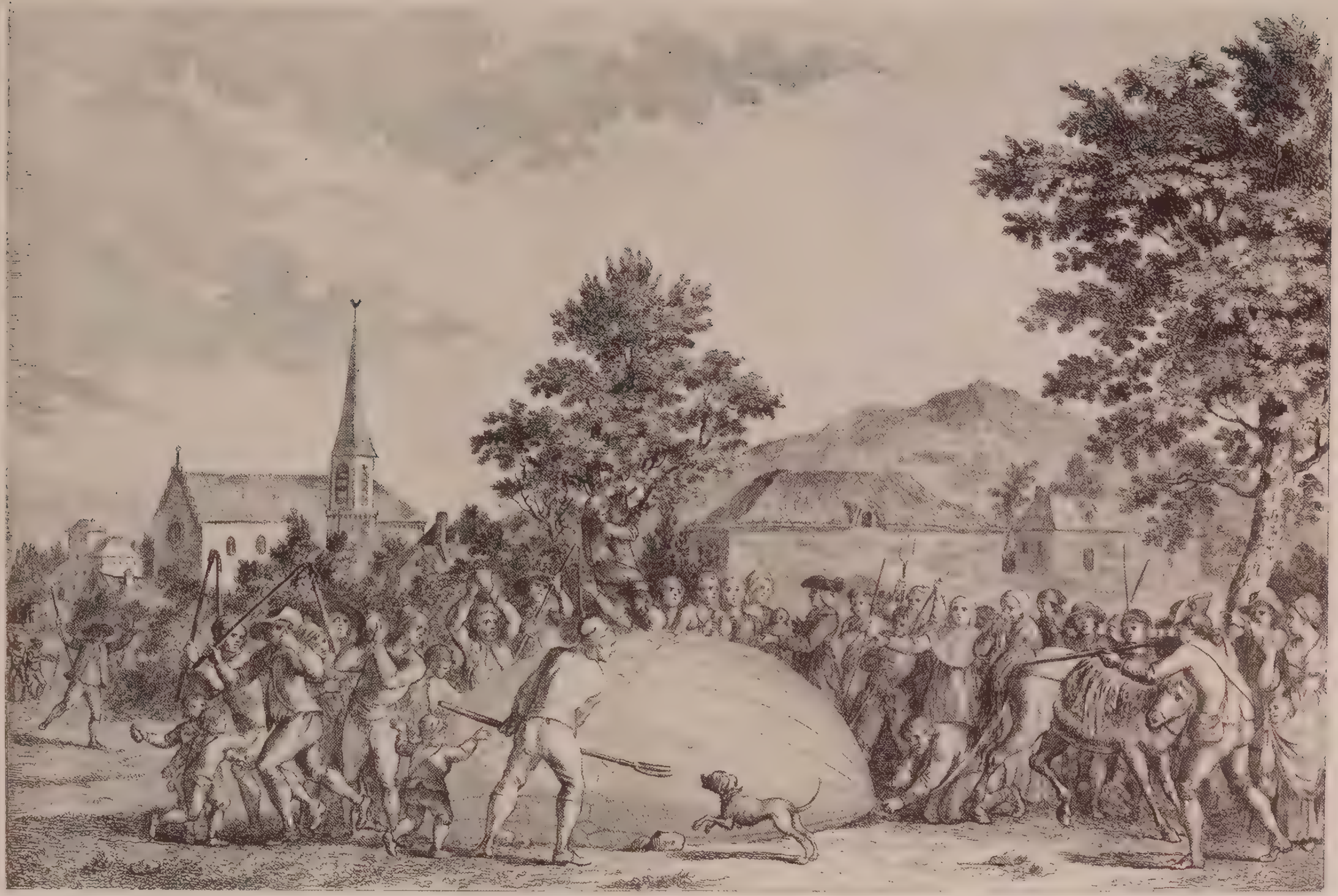


PLATE 8. THE LANDING OF THE FIRST HYDROGEN BALLOON. 1783
($7\frac{1}{2}$ × 11 in.)
From an impression in the Cuthbert Collection

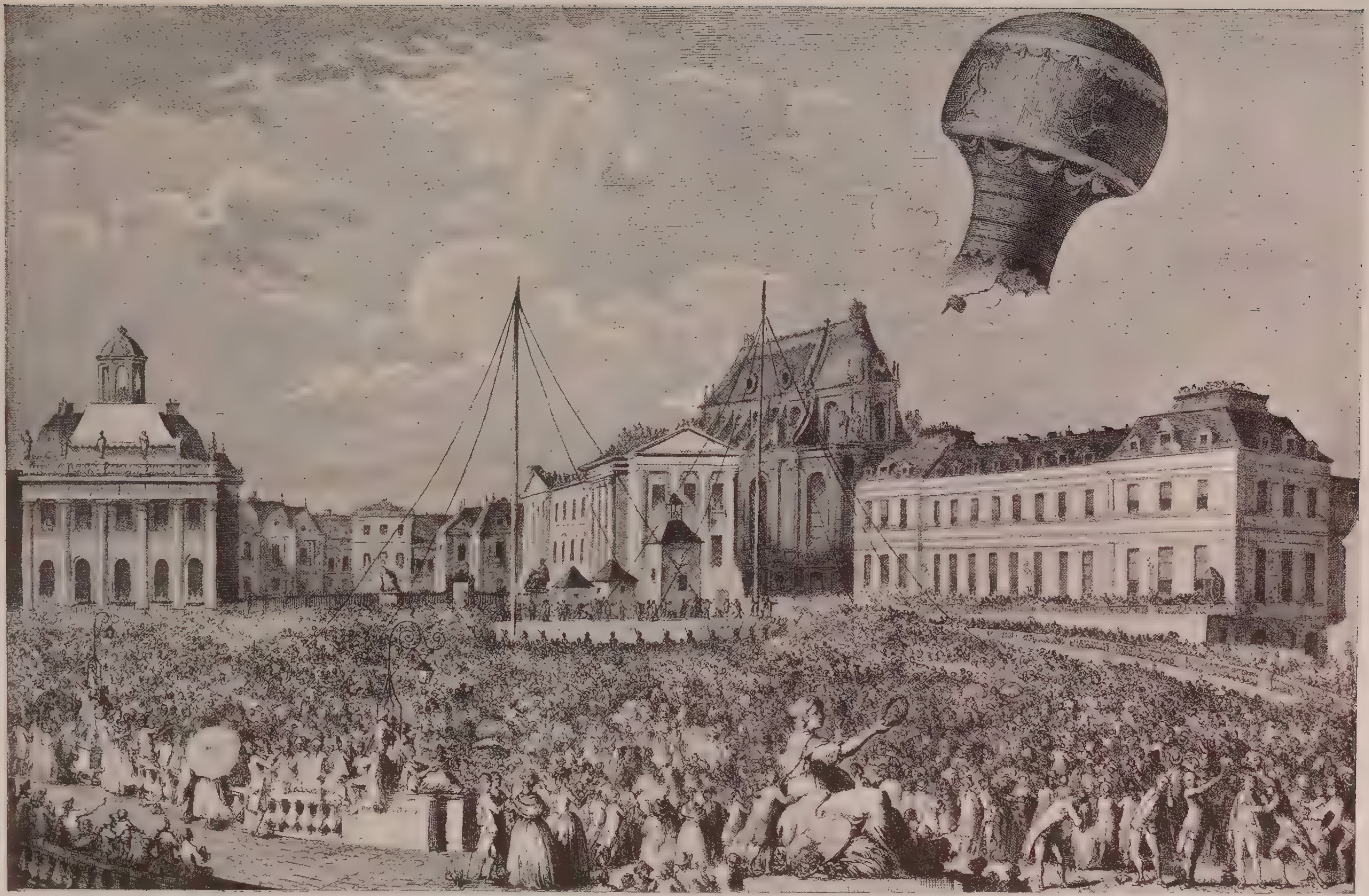


PLATE 9. THE VERSAILLES " ANIMAL " ASCENT. 1783
(7¼ × 11 in.)
From an impression in the Cuthbert Collection

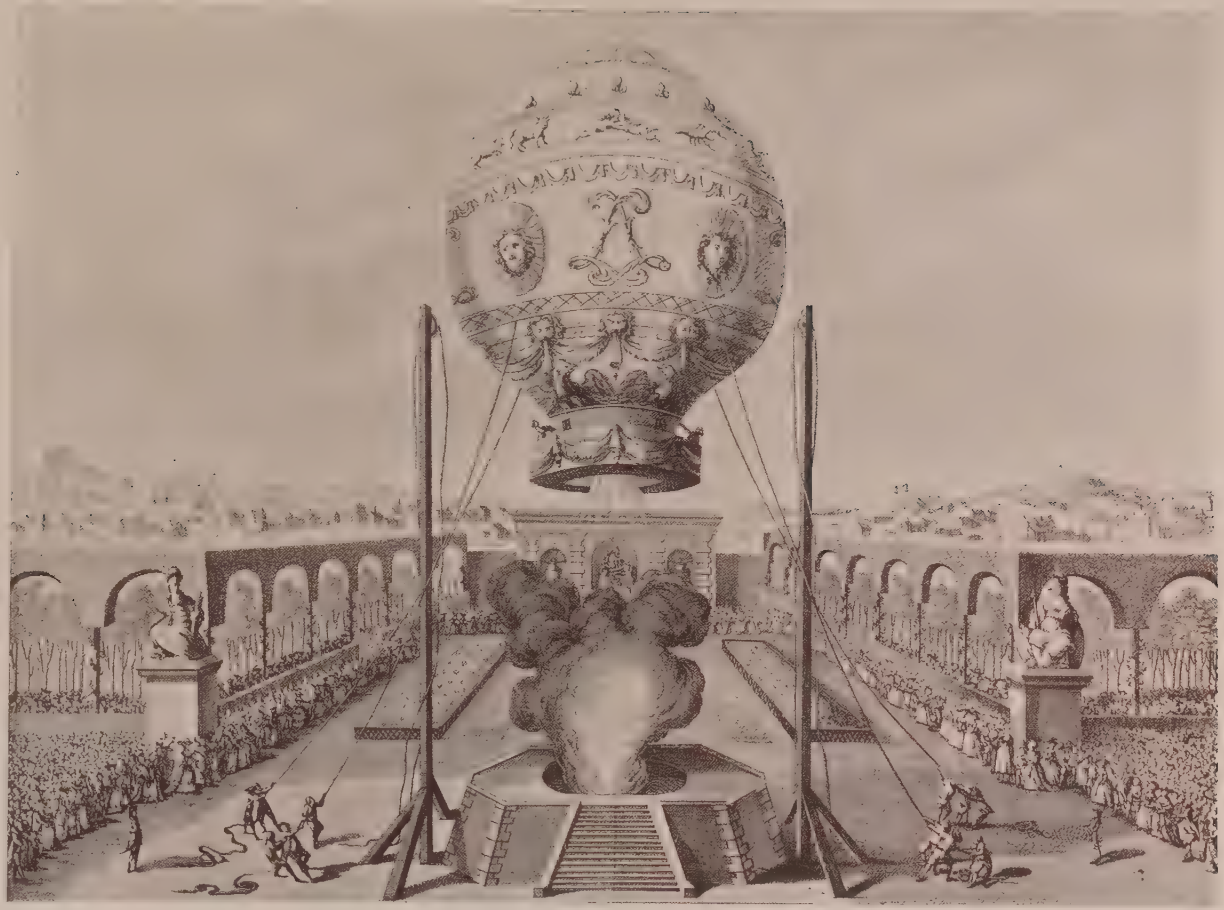


PLATE 10. A CAPTIVE ASCENT FROM THE REVEILLON GARDENS. 1783
(13½ × 18 in.)
From an impression in the Norman Collection at the Patent Office

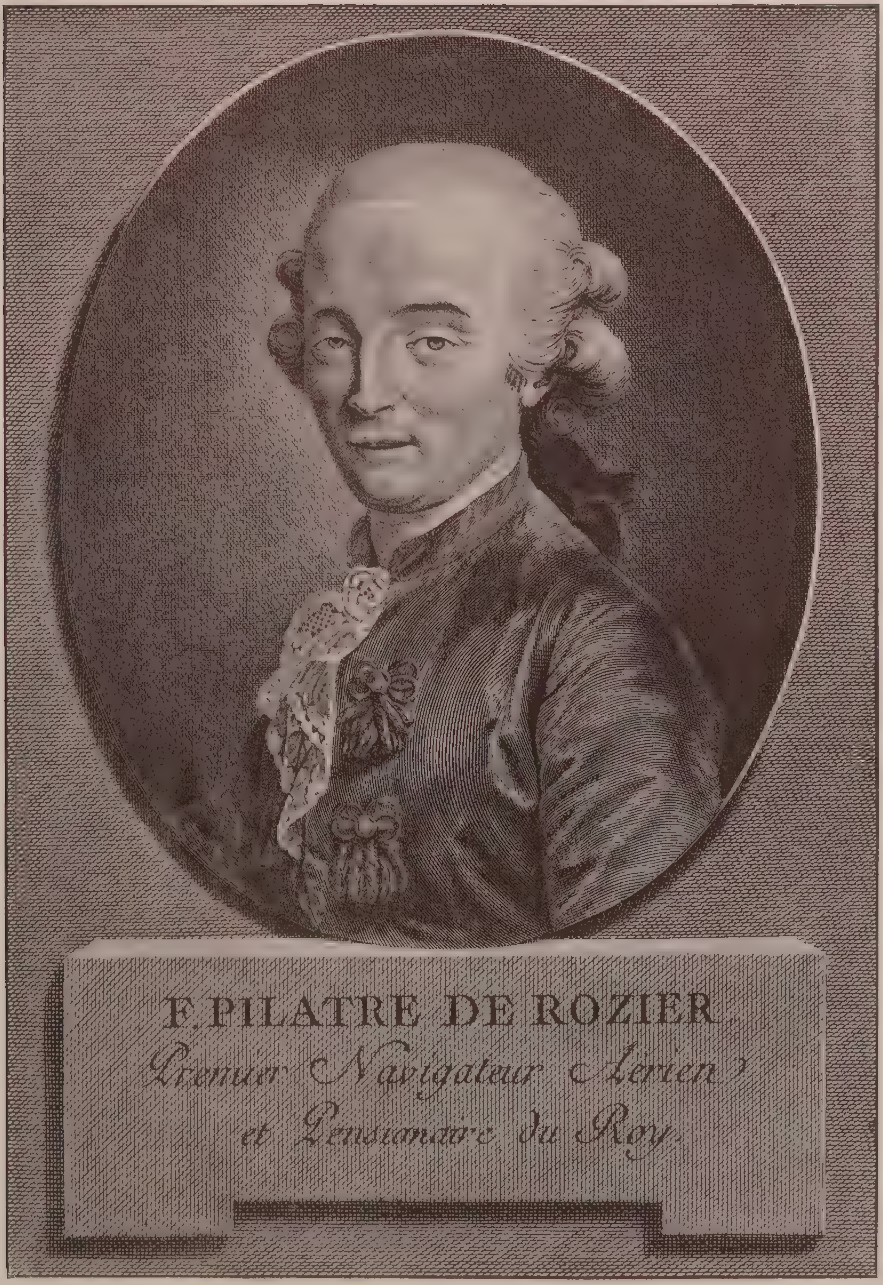

F. PILATRE DE ROZIER.
Premier Navigateur Aerien
et Pensionnaire du Roy.

PLATE 11. THE FIRST AERONAUT
(7¼ × 5 in.)
From an impression in the possession of Messrs. Maggs Bros.

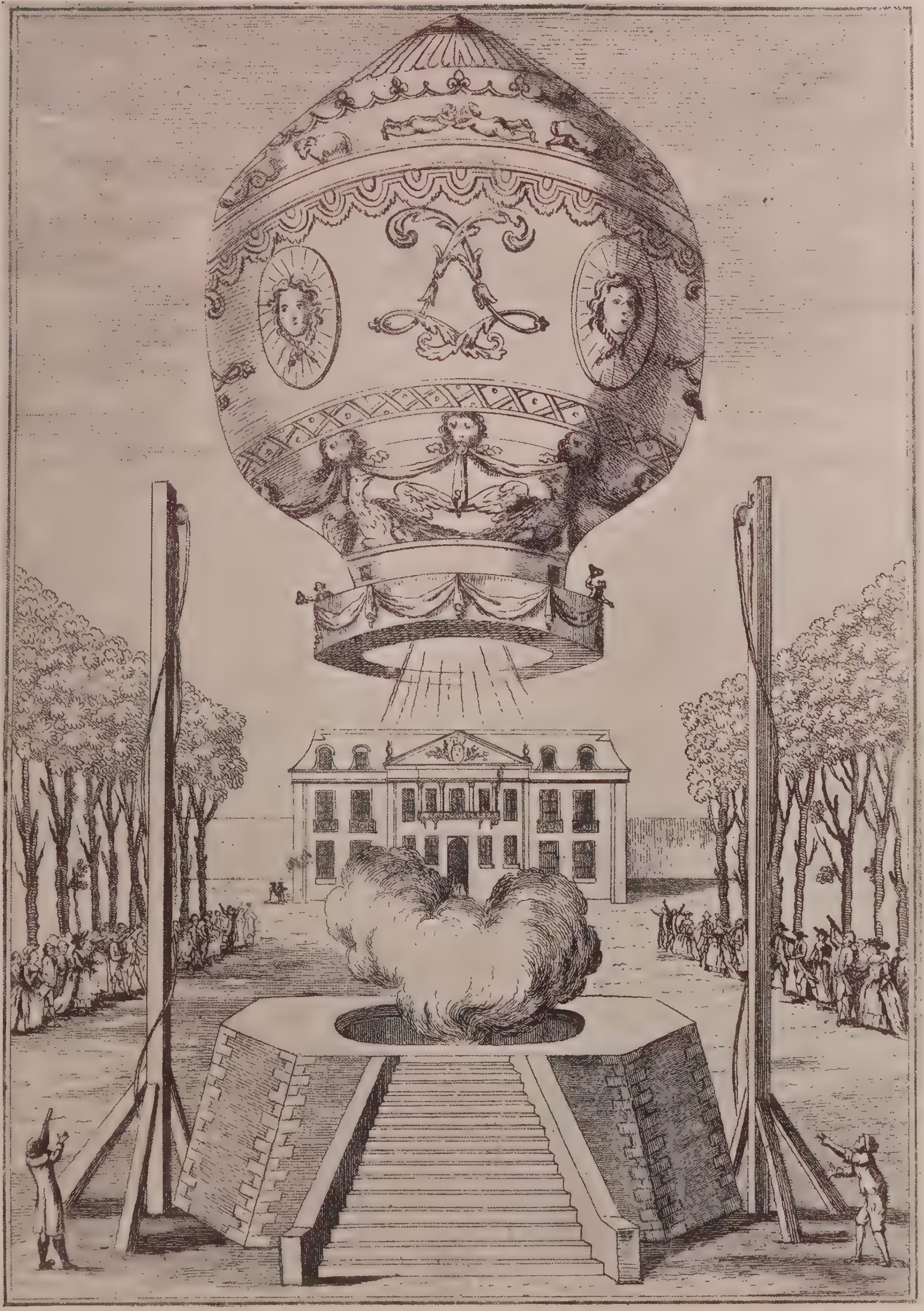
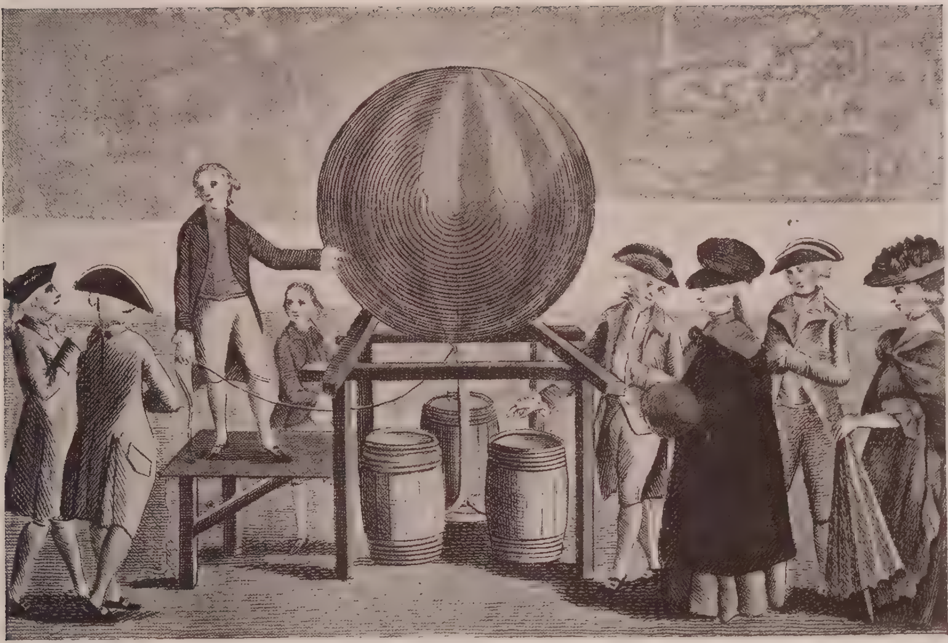


PLATE 12. THE FIRST AERIAL VOYAGE. 1783
(10½ × 7¼ in.)
From an impression in the Cuthbert Collection



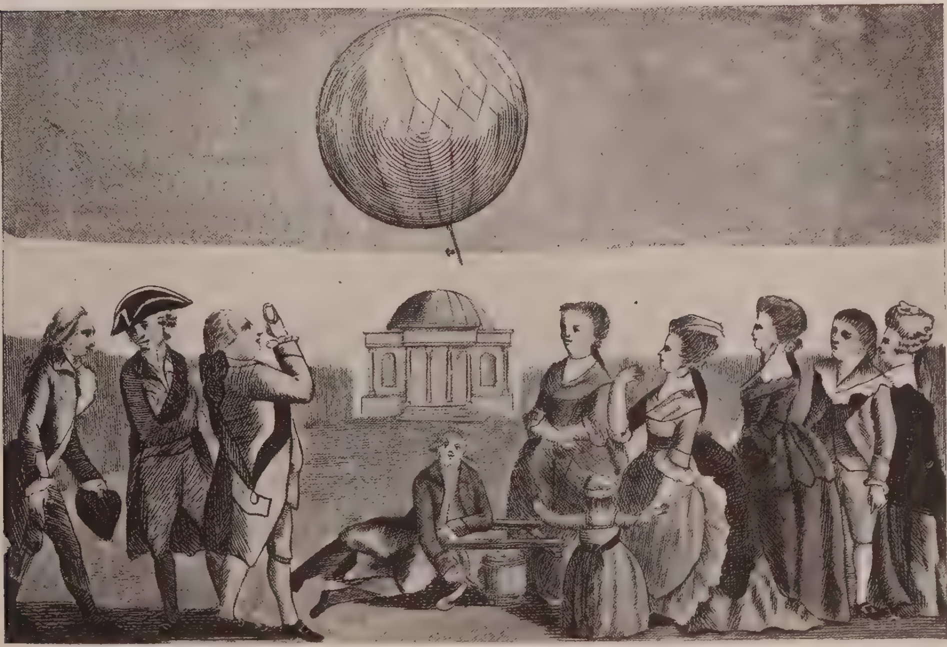


PLATE 13. PROFESSOR ARGAND DEMONSTRATING BEFORE GEORGE III AT WINDSOR. 1783
(Each, 4¼ × 6½ in.)
From impressions in the Cuthbert Collection

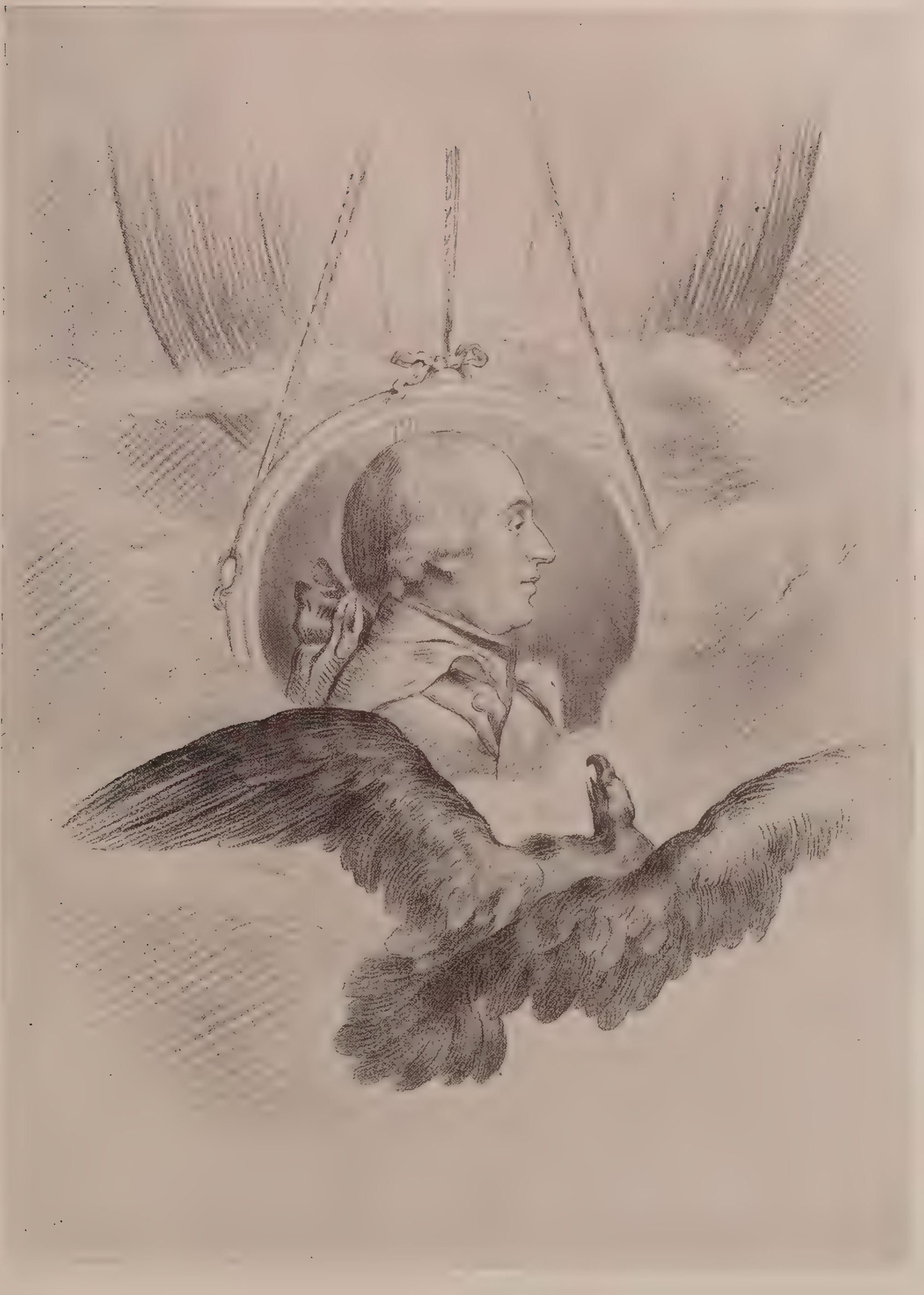


PLATE 14. J. A. C. CHARLES
(16 × 11½ in.)
From a crayon drawing in the possession of Messrs. Maggs Bros.

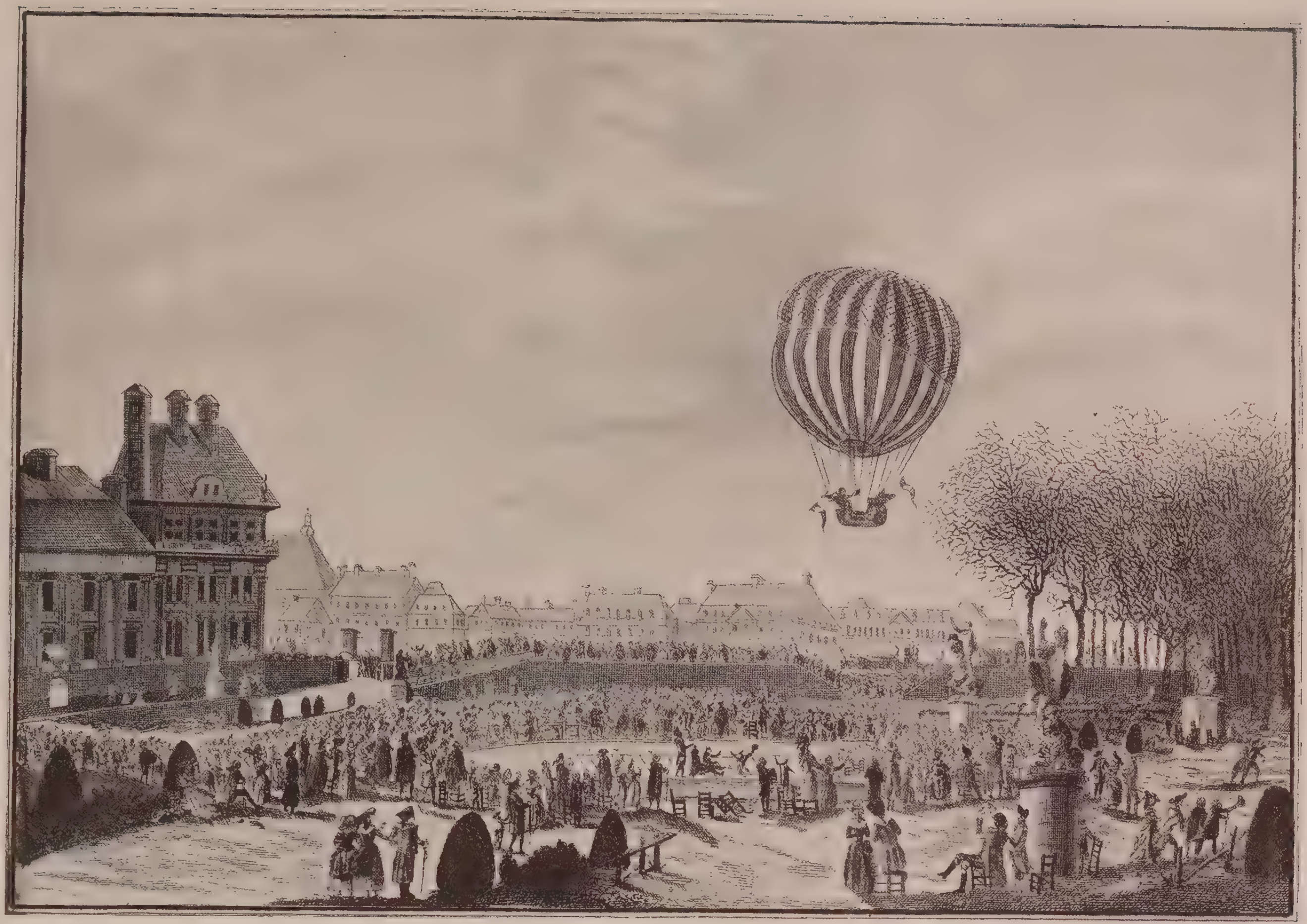


PLATE 16. CHARLES AND ROBERT LEAVING THE TUILLERIES. 1783
First state of Plate 45. ($8\frac{1}{4} \times 11\frac{3}{4}$ in.)
From an impression in the Cuthbert Collection

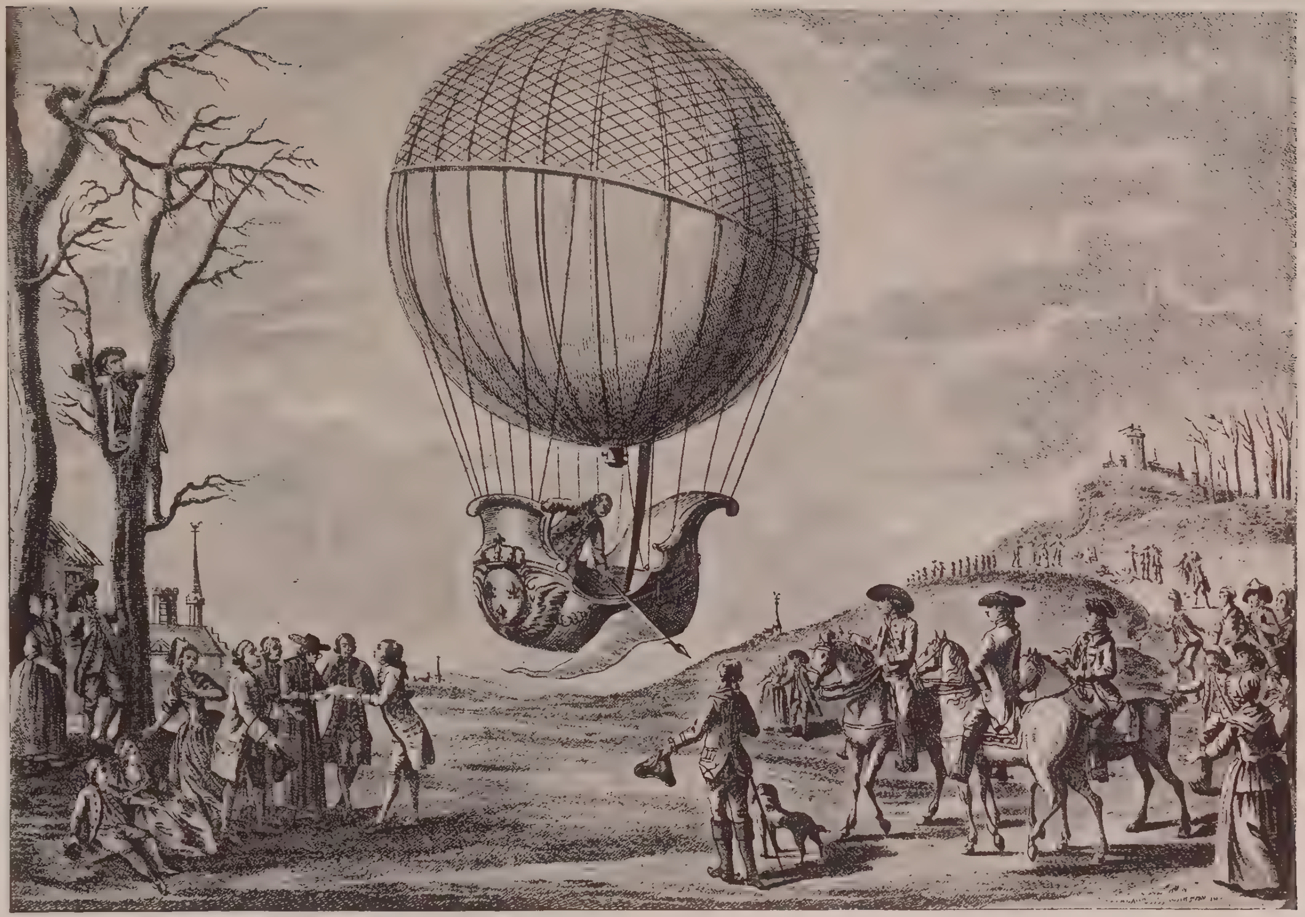
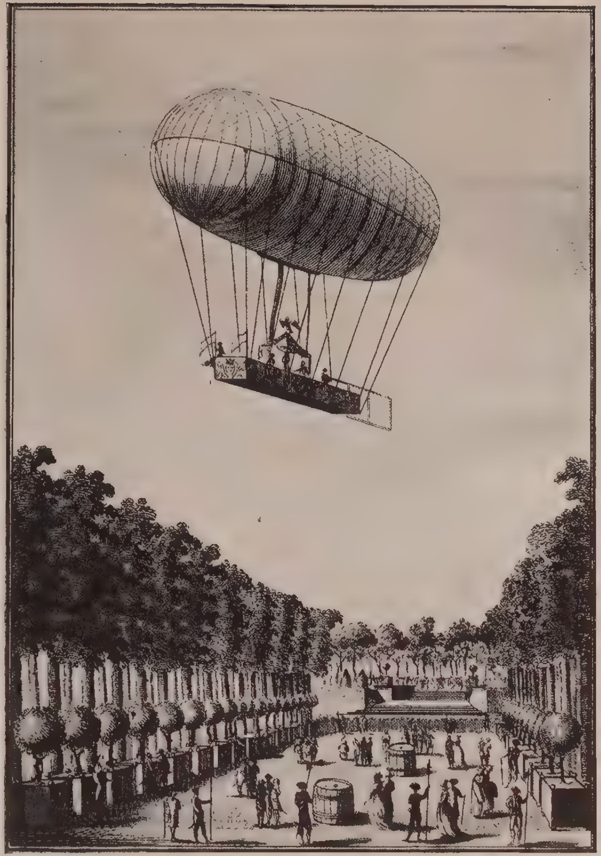
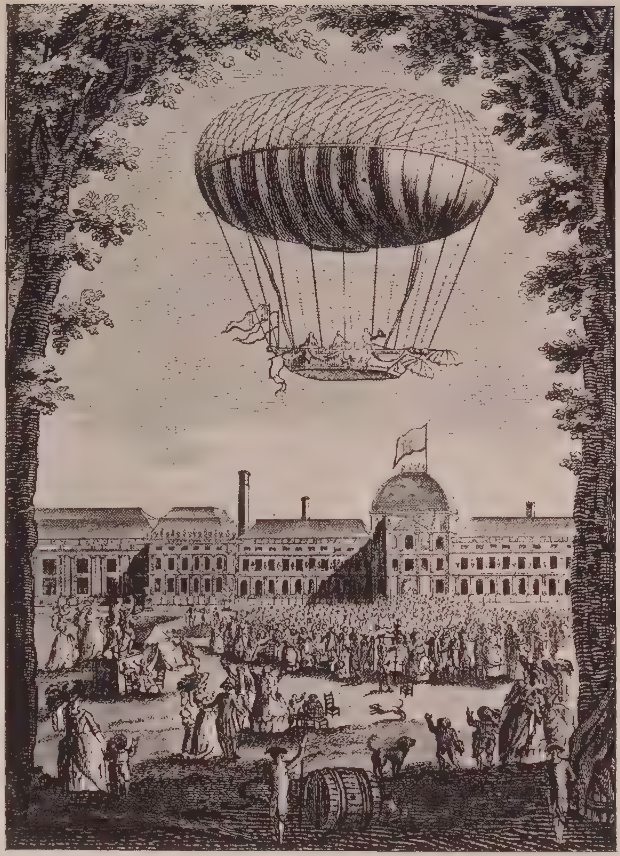


PLATE 17. NESLE. CHARLES RE-ASCENDING ALONE. 1783
(9 × 13 in.)
From an impression in the Cuthbert Collection



THE FIRST CYLINDRICAL BALLOON
($4\frac{3}{4} \times 3\frac{1}{4}$ in.)
After a drawing by de Lorimier (Dollfus Collection)



THE SECOND CYLINDRICAL BALLOON
($4\frac{3}{4} \times 3\frac{1}{4}$ in.)
After a drawing by de Lorimier (Dollfus Collection)

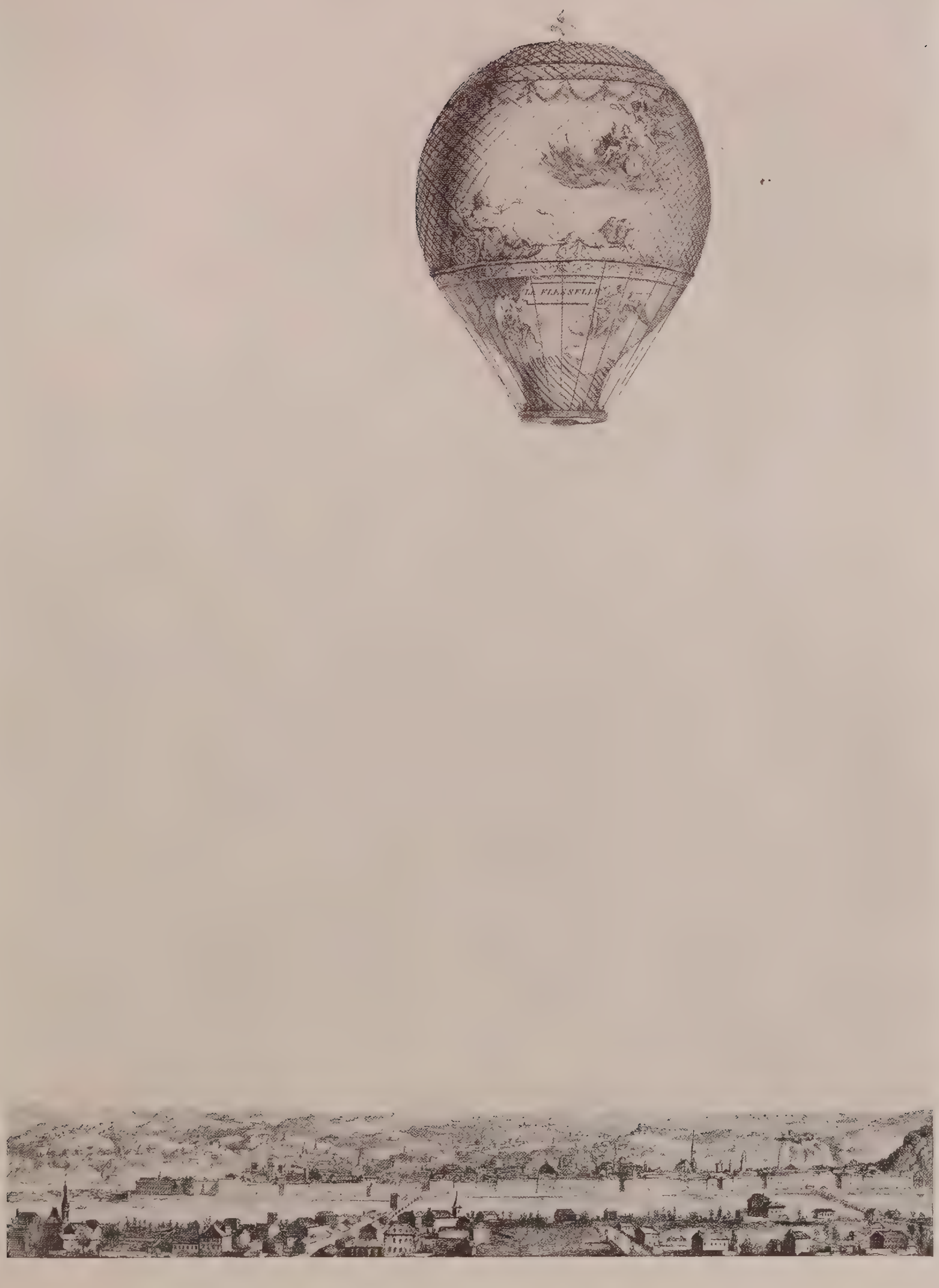


PLATE 20. "LE FLESSELLE" OVER LYONS. 1784
(14 × 10½ in.)
From an impression in the Cuthbert Collection

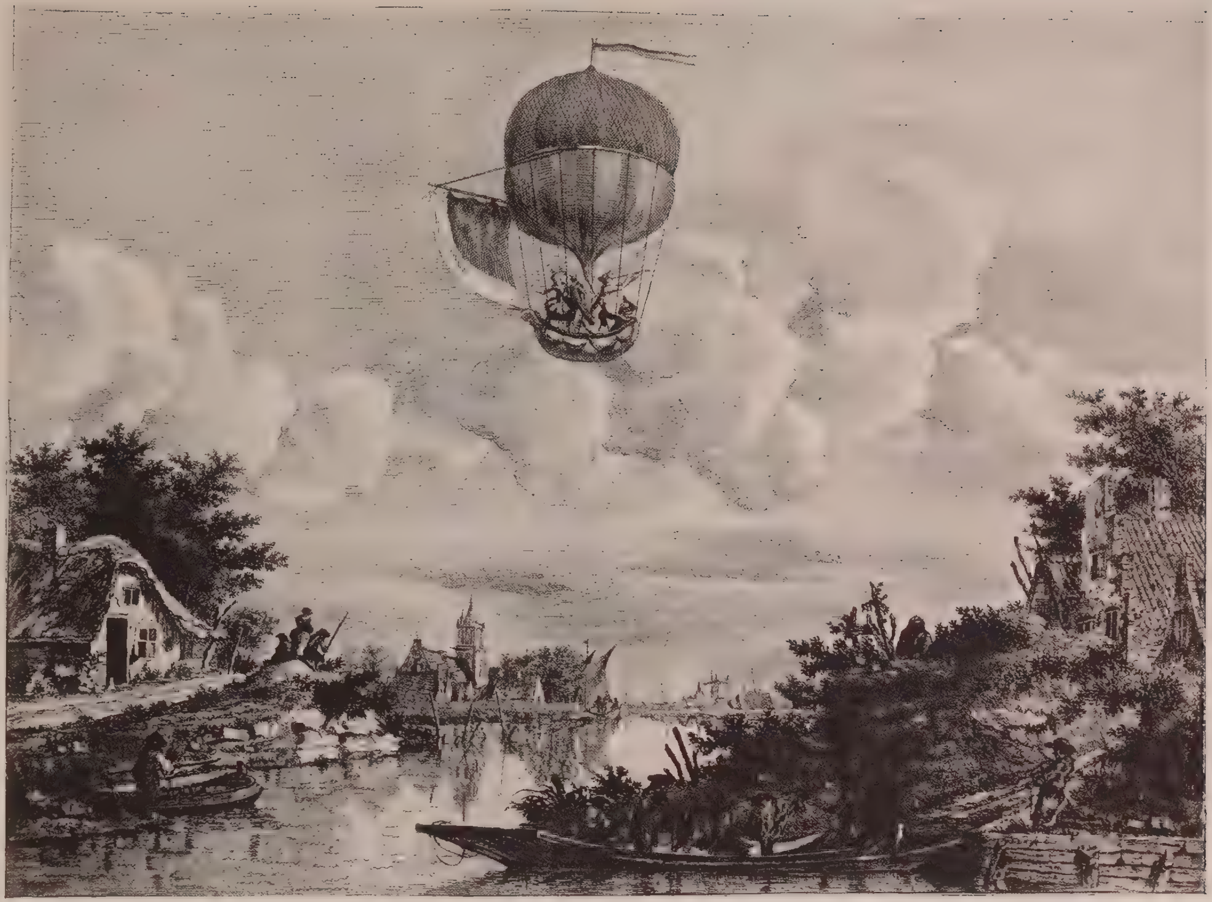


PLATE 21. "THE ELOPEMENT." 1784
(9¼ × 12½ in.)

Planche 14^eme^

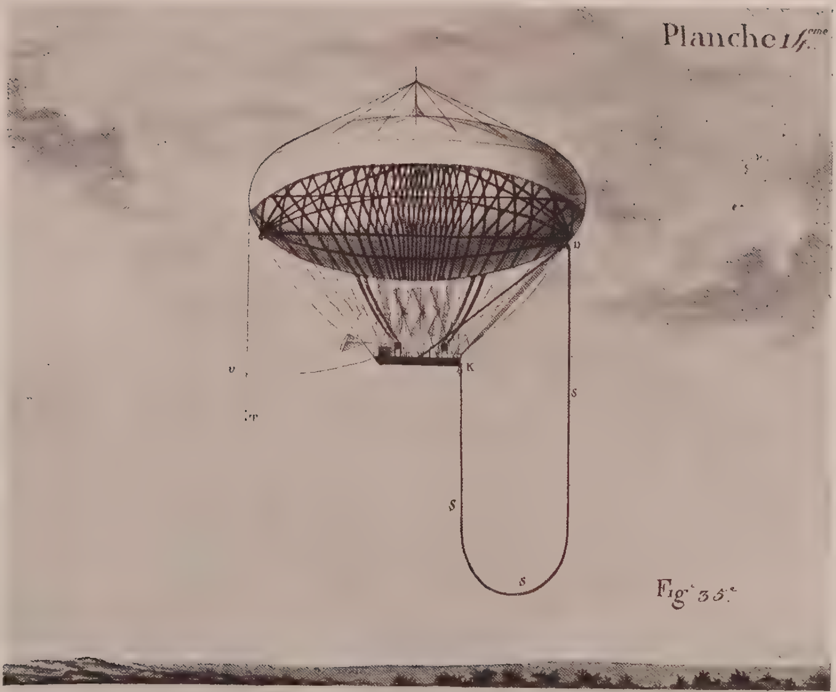


Fig.^e^ 35.^e^

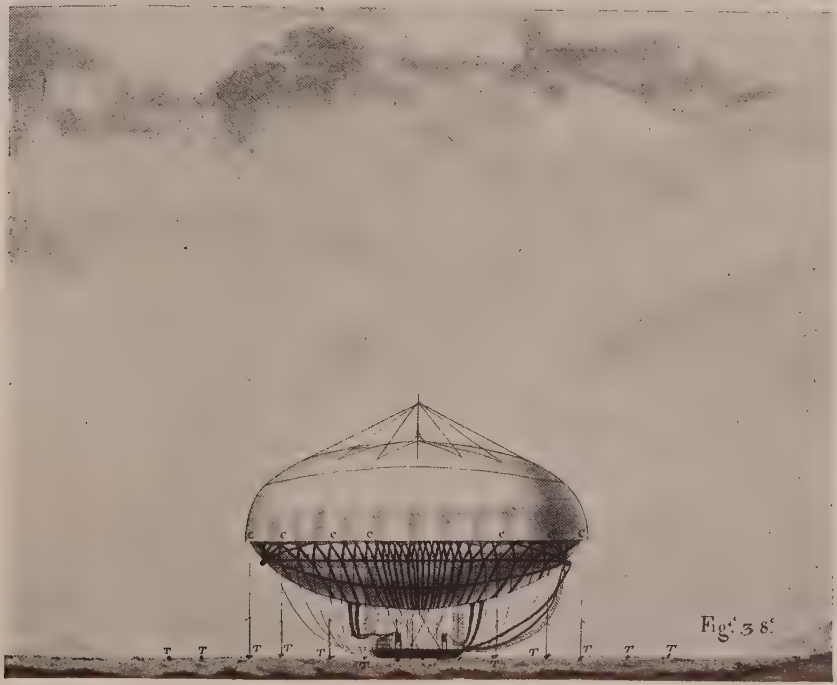
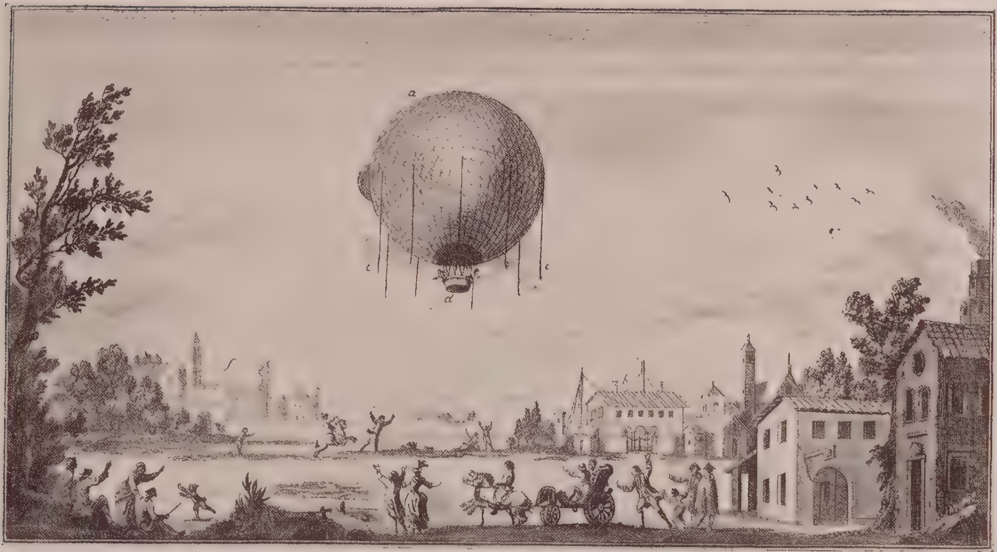
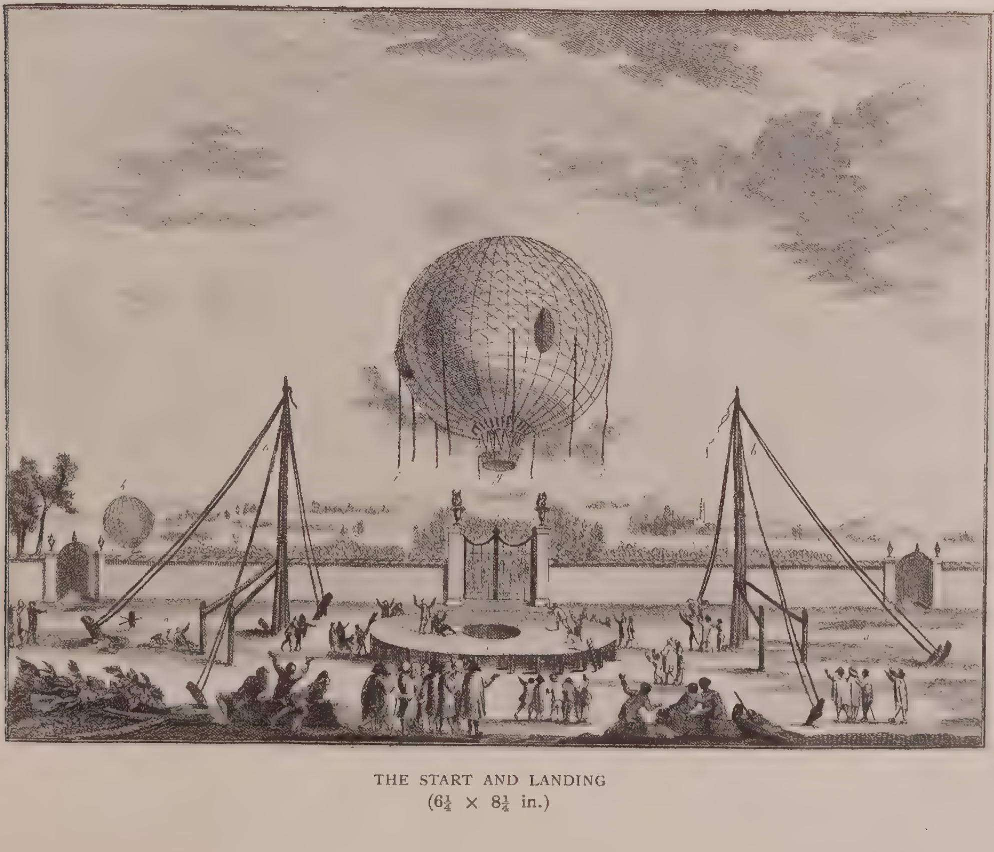


Fig.^e^ 38.^e^

PLATE 23. MEUSNIER'S AIRSHIP. 1784
From the original water-colours at Chalais Meudon



" IN THE AIR "
(4½ × 8½ in.)



THE START AND LANDING
(6¼ × 8¼ in.)

PLATE 24. ANDREANI'S BALLOON. 1784
From a copy of " Opusculi di Agostino Gerli " in the possession of the Royal Aeronautical Society

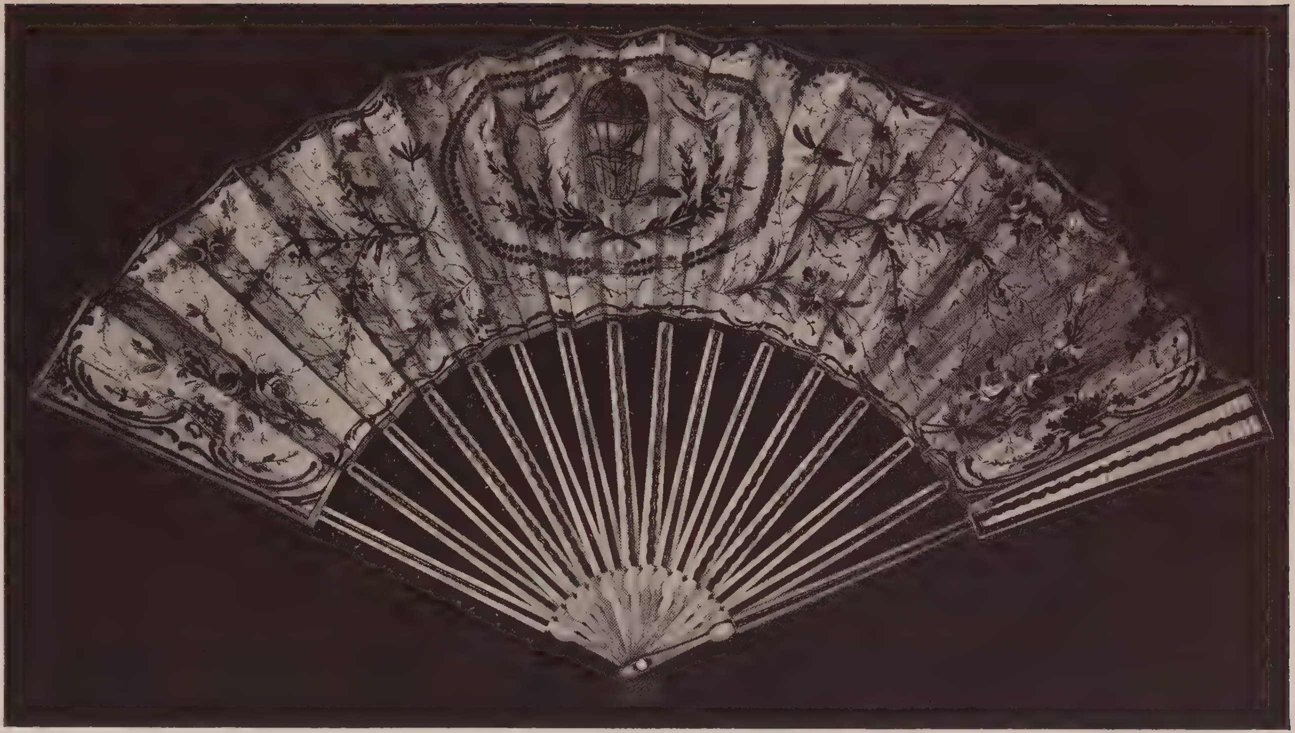
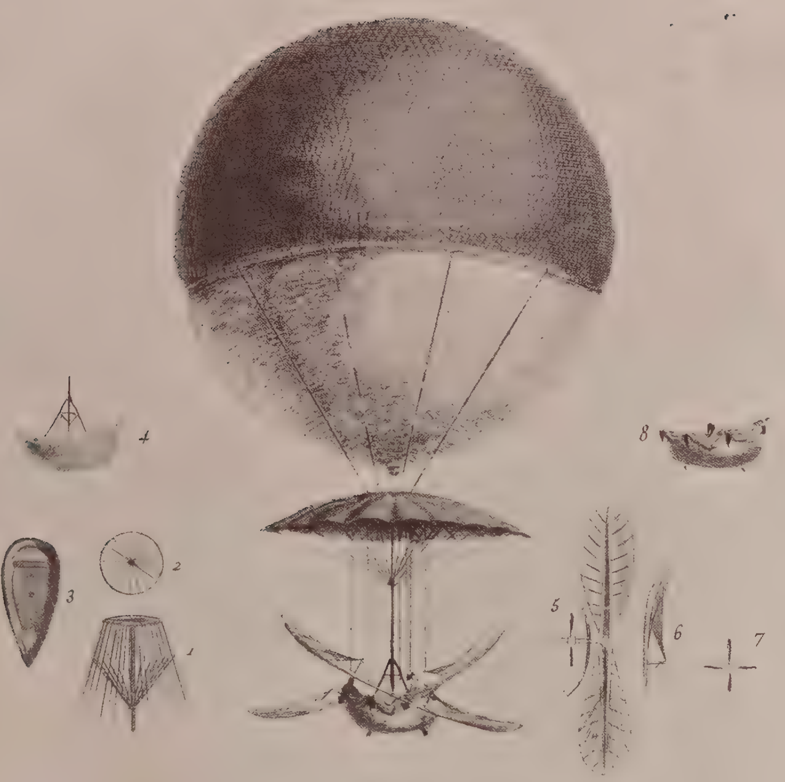


PLATE 25. FAN SHOWING BLANCHARD'S BALLOON. 1784
In the Dollfus Collection



VAISSEAU VOLANT AEROSTATIQUE, DE M.^{R} BLANCHARD.

1. Carcasse du Parassol baisse,
2. Cercle du Parassol attaché au Globe par 10. cordons tenants au cercle du filet,
3. Interieur du Vaisseau,
4. Mast et ses attaches au Vaisseau,
5. Ailes du Vaisseau vües à plat.
6. Aîle vüe de profil.
7. Manivelle pour les faire mouvoir,
8. Forme du Vaisseau orné d'une draperie de taffetas cramoisi et de glands d'or.

PLATE 26. BLANCHARD'S BALLOON. 1784
(15 × 11¼ in.)
From an impression at Chalais Meudon

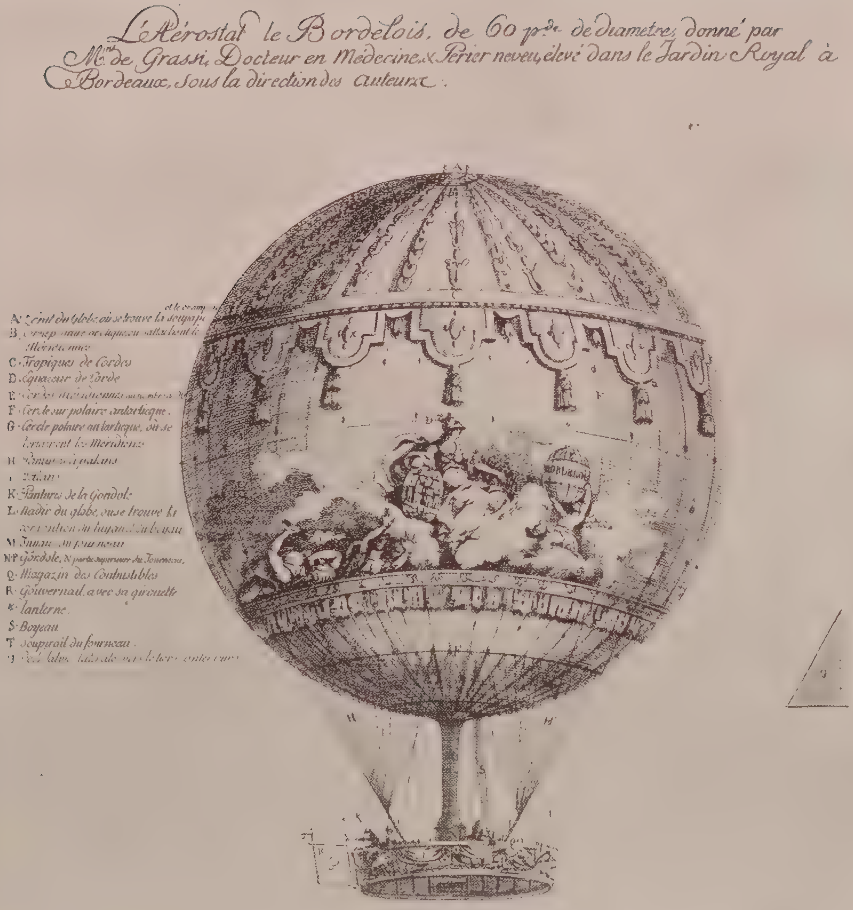

L'Aérostat le Bordelois, de 60 p.ds de diametre, donné par
M.rs de Grassi, Docteur en Médecine, & Perier neveu, élevé dans le Jardin Royal à
Bordeaux, sous la direction des auteurs.
A Zénit du globe où se trouve la soupape et le cramp
C Tropiques de Cordes
D Equateur de Corde
F Cercle sur polaire antartique.
G Cercle polaire antartique, où se terminent les Méridiens
K Pantures de la Gondole
L Nadir du globe, où se trouve la
M Tuyau du fourneau
N P Gondole, N partie superieure du Fourneau,
Q Magazin des Combustibles
R Gouvernail, avec sa girouette
lanterne.
S Boyeau
T Soupirail du fourneau.
BORDELOIS

PLATE 28. L'AÉROSTAT LE BORDELAIS. 1784
($8\frac{1}{2} \times 7\frac{1}{4}$ in.)
From an impression in the Dollfus Collection

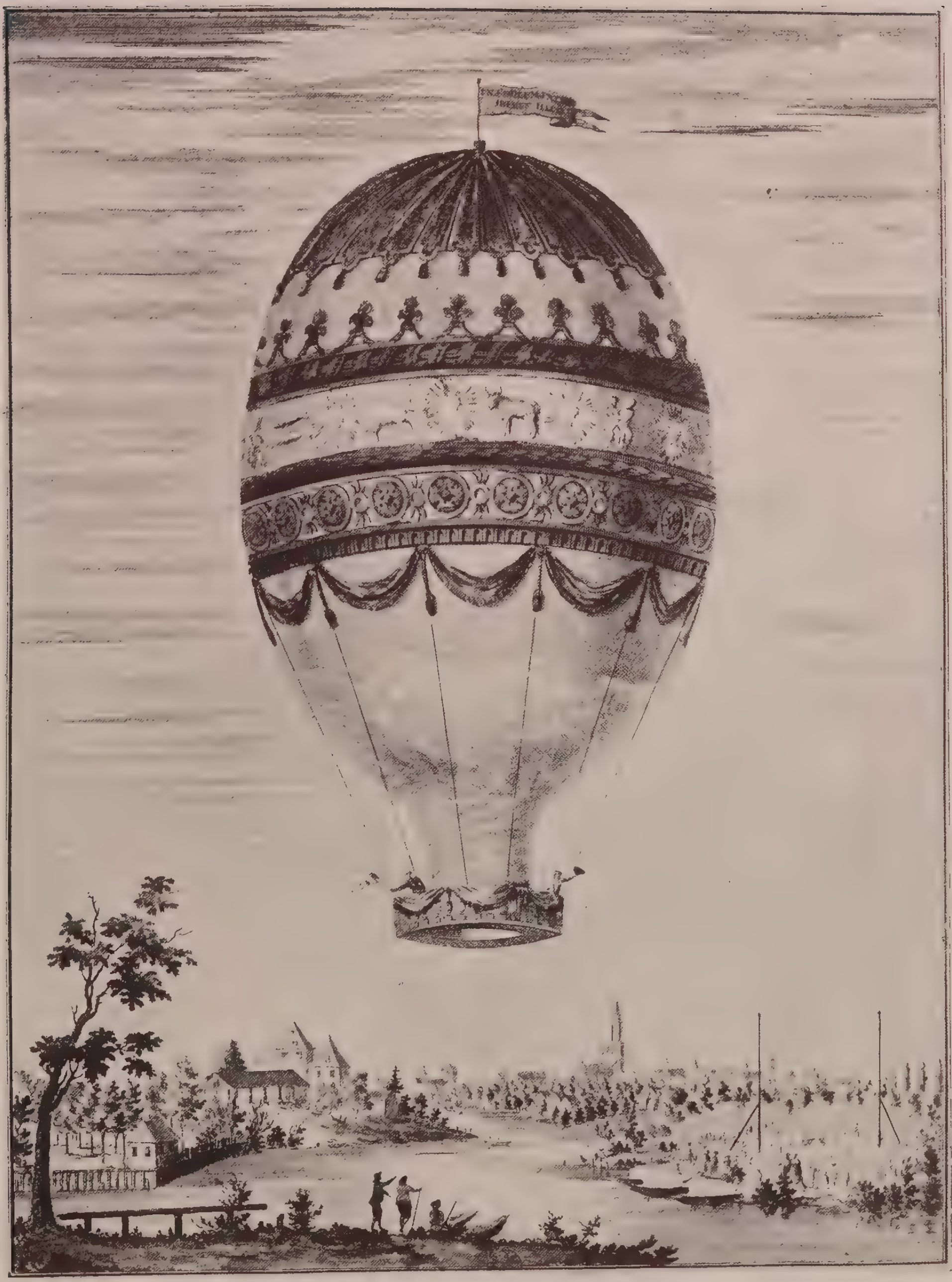


PLATE 29. THE FIRST ASCENT FROM STRASBOURG. 1784
(11¾ × 9 in.)
From an impression in the Bibliothèque Nationale, Paris

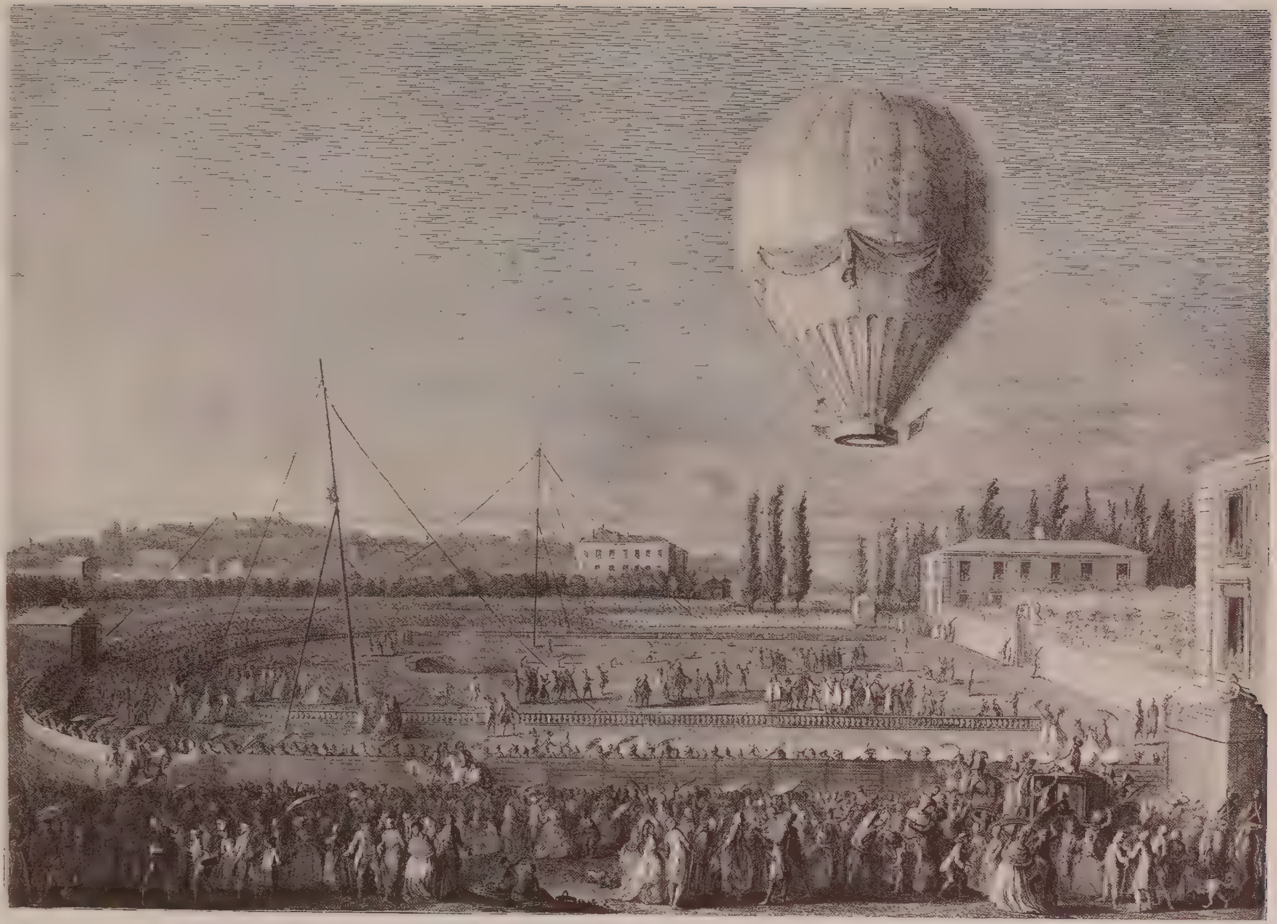


PLATE 30. THE FIRST LADY AERONAUT. 1784
($12\frac{1}{4}$ × 17 in.)
From an impression in the possession of the Author

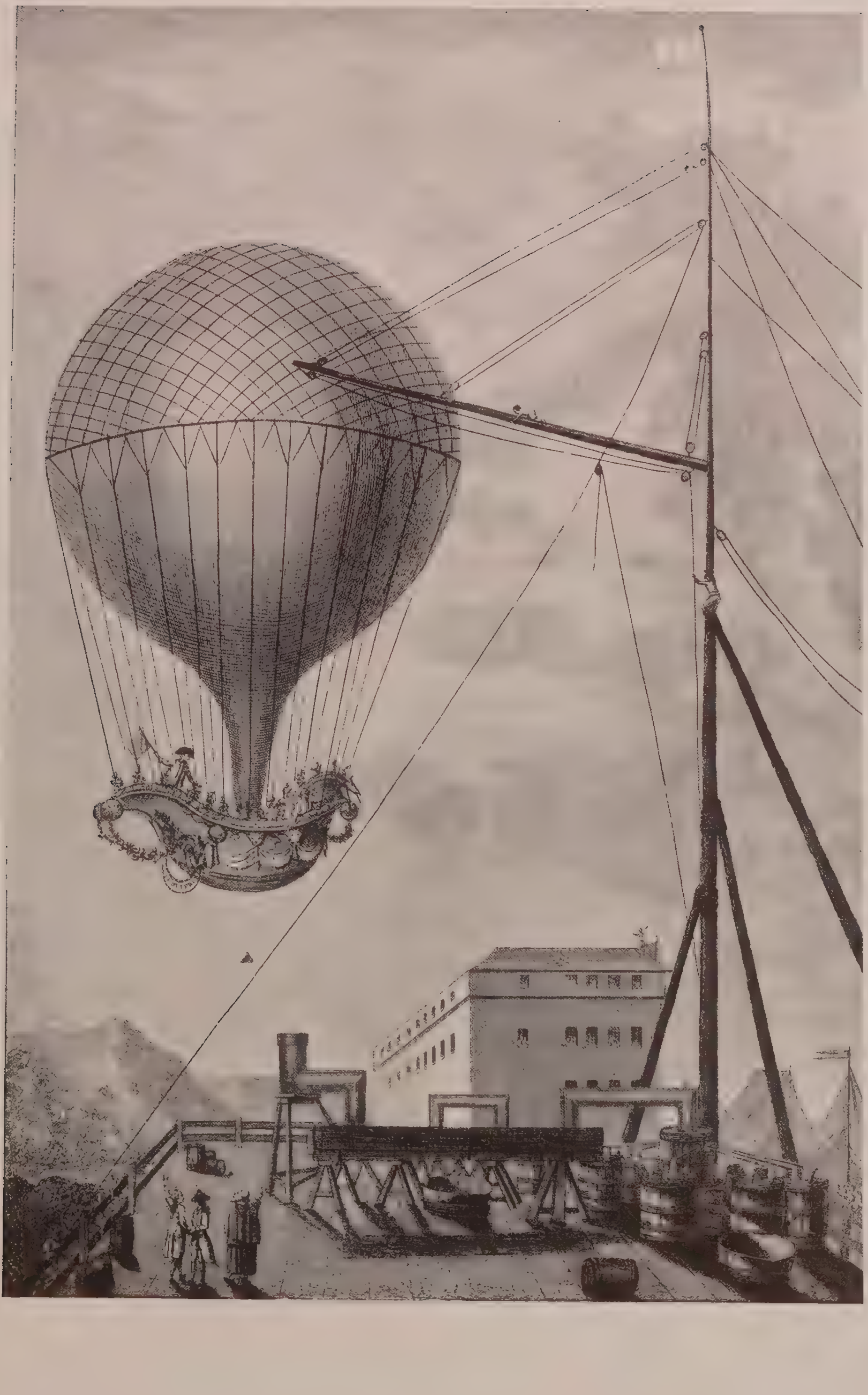


PLATE 31. NANTES, " LE SUFFREN." 1784
(15 × 10 in.)
From an impression in the Cuthbert Collection

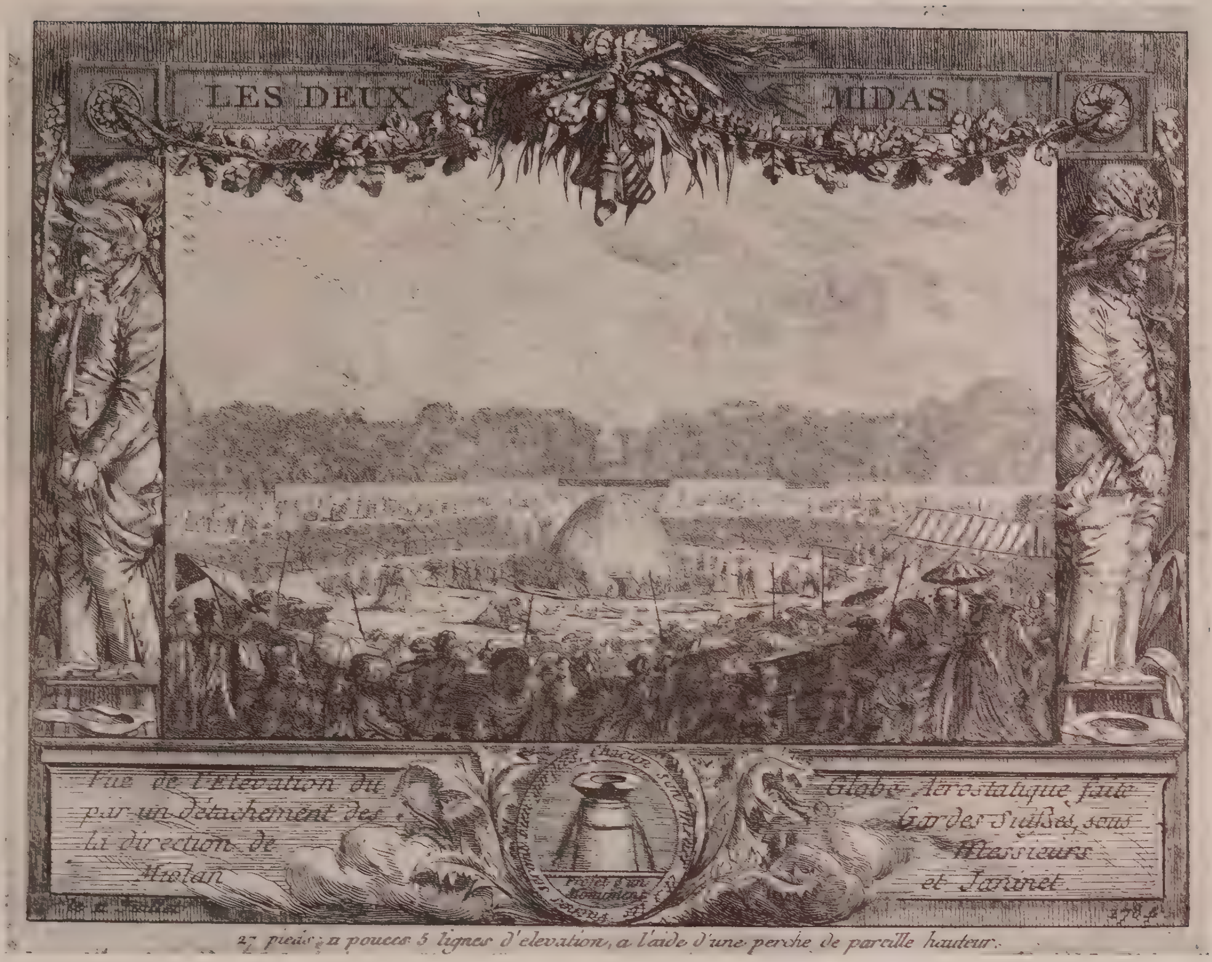
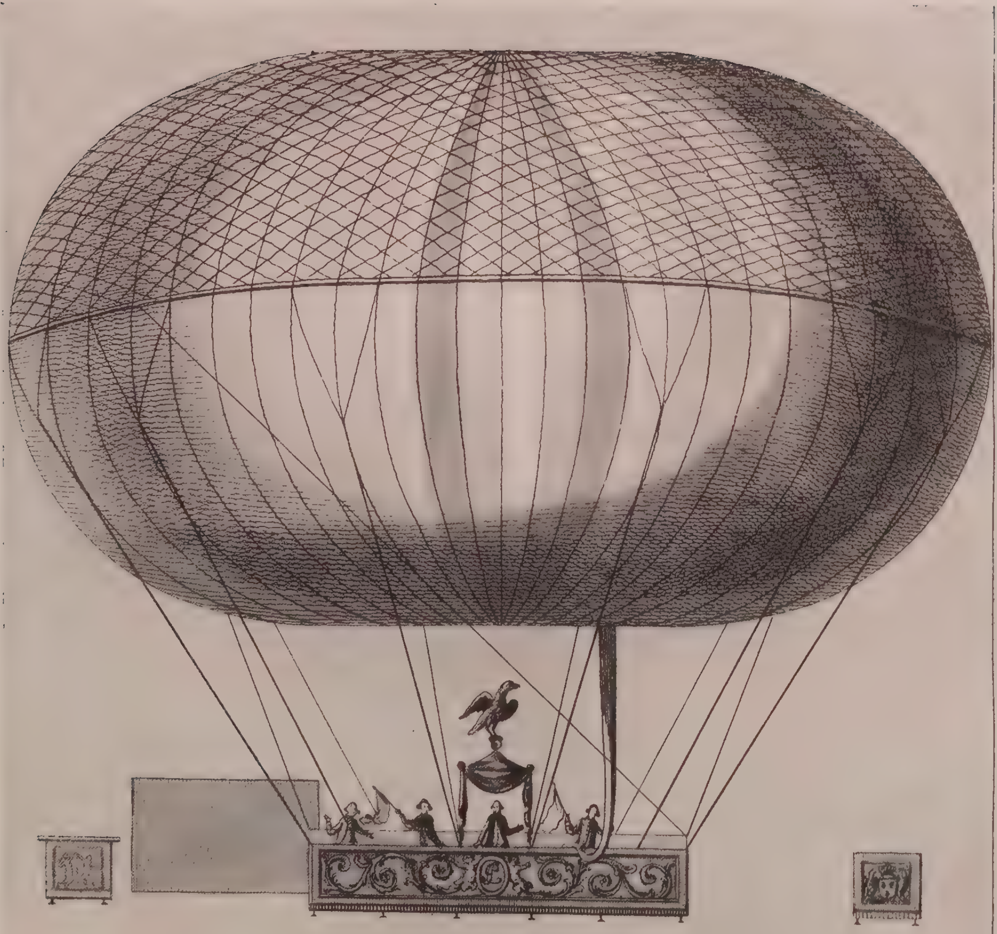

LES DEUX MIDAS
Vue de l'Elevation du Globe Aerostatique faite
par un détachement des Gardes Suisses, sous
la direction de Messieurs
Miolan et Janinet
Chacun son métier
Projet d'un Monument
1784
27 pieds 11 pouces 5 lignes d'elevation, a l'aide d'une perche de pareille hauteur.

PLATE 32. MIOLAN AND JANINET. 1784
($7\frac{1}{2}$ × $9\frac{3}{8}$ in.)
From an impression in the Cuthbert Collection



EXPERIENCE AËROSTATIQUE

d'un Ballon élevé au Parc de S^t. Cloud, le 15. Juillet 1784. Par MM. Robert frères.

Leur Ballon, rempli d'air inflamable et d'une forme cilindrique avoit 52. pieds de longueur, sur 32. de diamêtre; il paroit que sa construction avoit pour objet l'application de moyens interieurs pour l'ascension et la descente à volonté sans être forcé de perdre ni gaz ni lest, et d'autre moyens exterieurs pour tenter la direction, puisqu'on y avoit adapté gouvernail et rames ou ailes de taffetas.

Au moment de l'arrivée du Ballon dans la pièce dite des vingt quatre jets, les applaudissemens furent universels. Deux des cordes qui servoient à retenir et faire avancer le Ballon, étoient tenues de droite et de gauche par 2. jeunes Femmes, Epouses des S^rs Robert. Cette circonstance ajoutoit à l'intérêt de cette marche imposante.

A huit heures du matin, les Voyageurs, au nombre de quatre, entrèrent dans le Char et on lacha les cordes. Le Public éloigné demanda à grand cris que ceux qui étoient plus près s'agenouillassent pour leur laisser la liberté de voir, personne ne se refusa à la justice de cette demande; Hommes et Femmes, mirent un genouil en terre, et cette circonstance achena le tableau le plus extraordinaire qui se soit jamais vu. Le Ballon au milieu de cette foule ainsi prosternée, s'éleva avec lenteur et se perdit en 3. minutes dans les nues.

L'Ascension du Ballon ne pût être estimée par les Spectateurs, aux yeux desquels il fut absolument invisible: il a tenu l'air environ trois quarts d'heure, et pris terre à peu de distance du lieu de son départ, à 30. pieds des bords de l'Etang de la Garenne, dans le Parc de Meudon. La descente, quoique rapide, se fit sans aucun accident.

A Paris chez Esnauts et Rapilly, Rue S^t. Jacques à la Ville de Coutances.

PLATE 33. ST. CLOUD. FIRST CYLINDRICAL BALLOON. 1784
(12¼ × 9 in.)
From an impression in the Cuthbert Collection

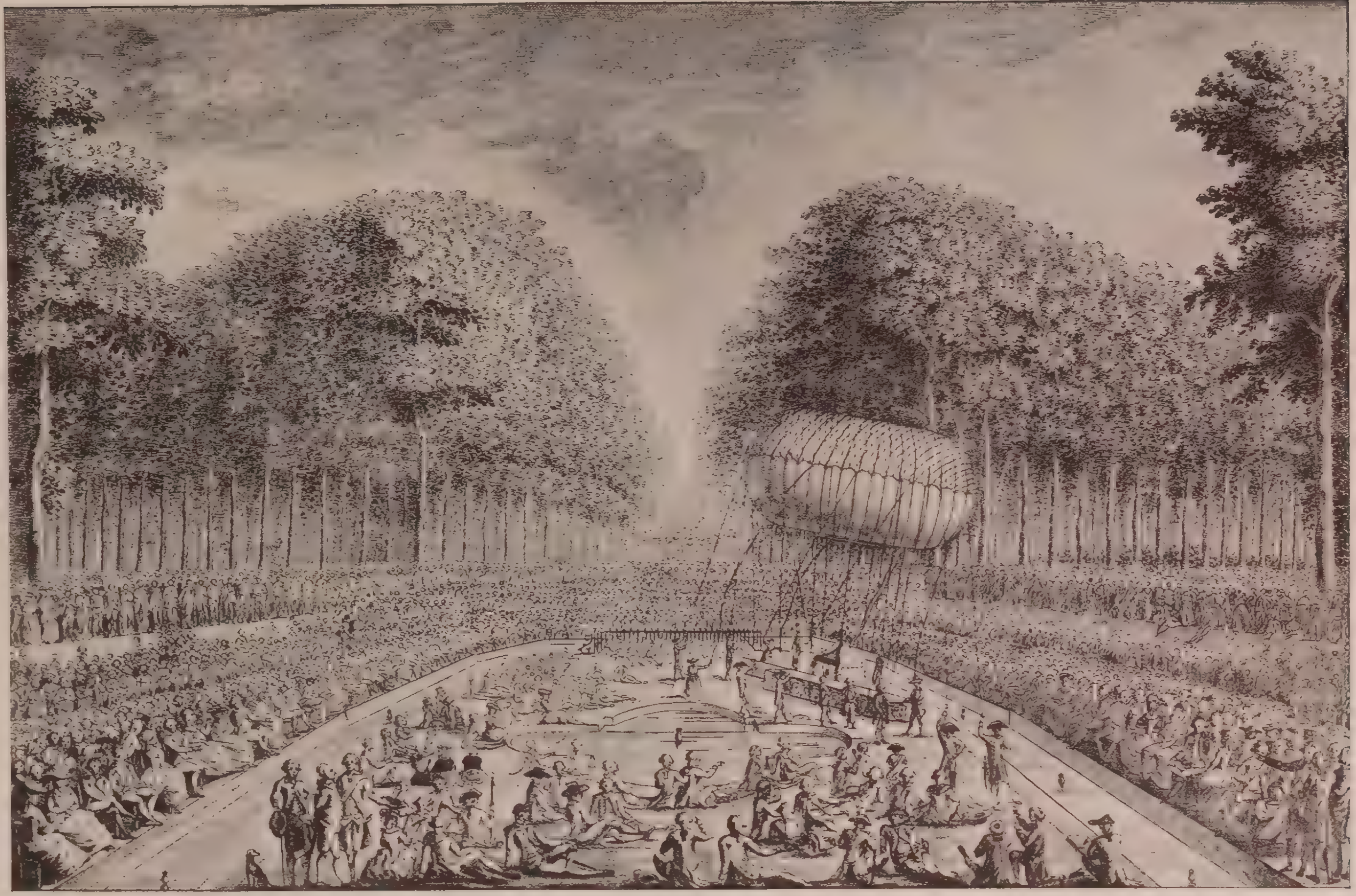


PLATE 34. THE FIRST CYLINDRICAL BALLOON. 1784
(5½ × 8½ in.)
From an impression in the Cuthbert Collection

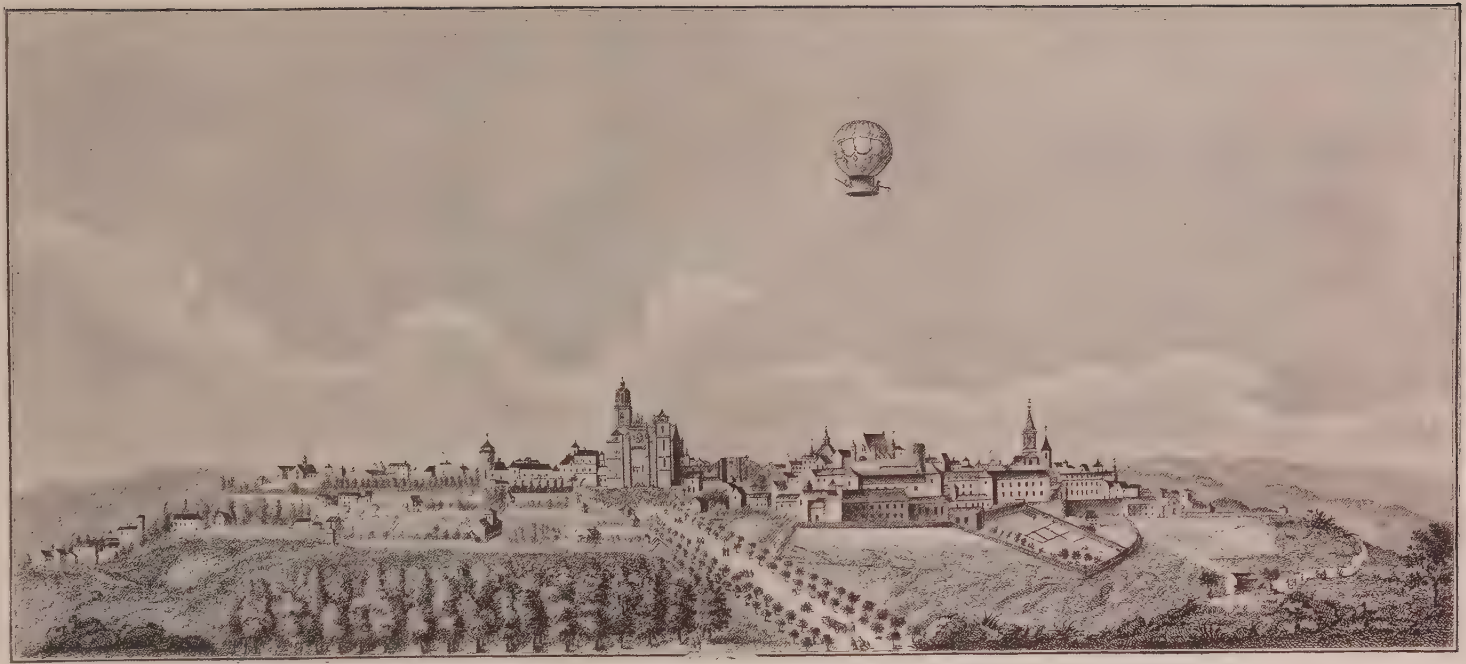
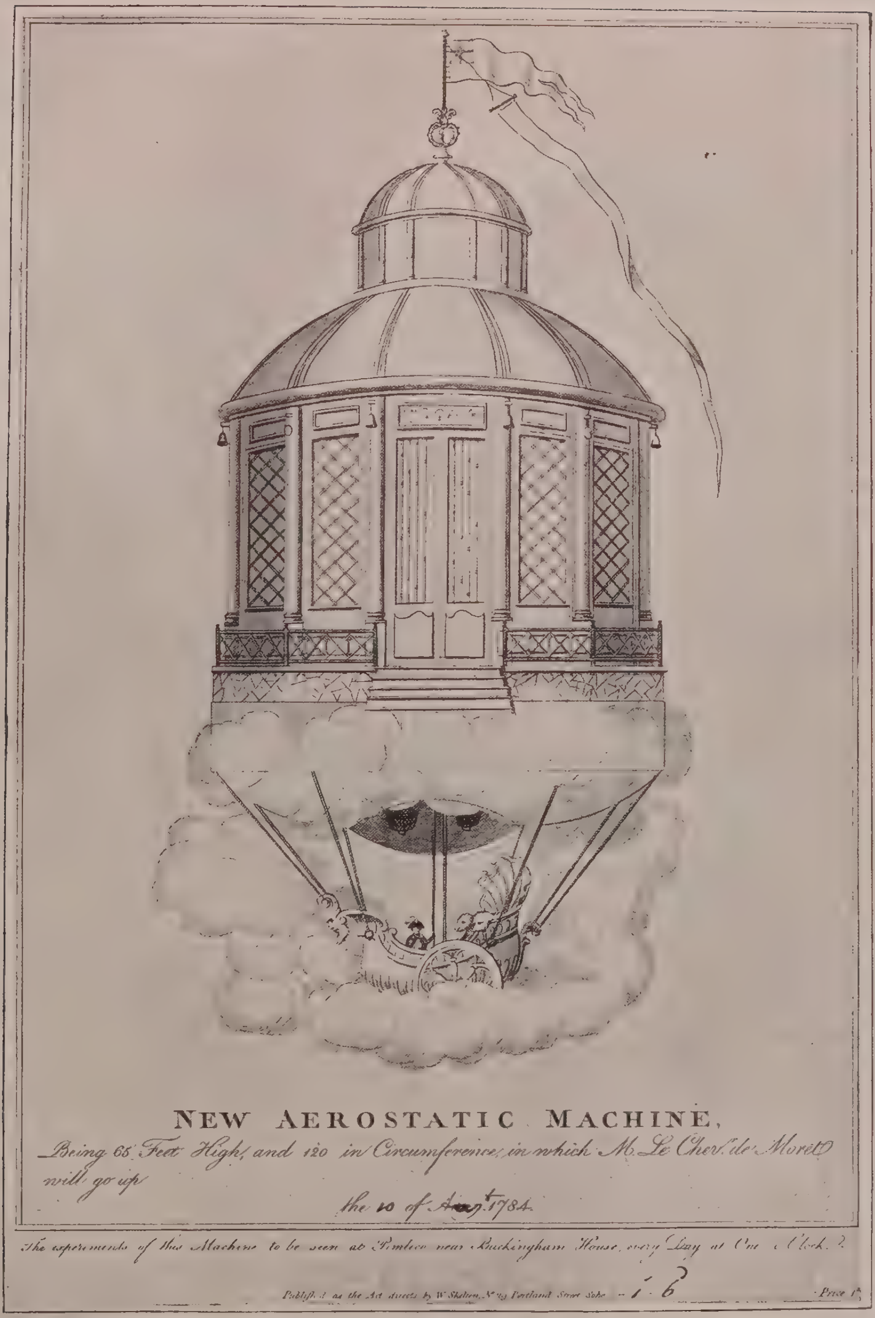


PLATE 36. RODEZ. THE ASCENT OF L'ABBÉ CARNUS. 1784
(7¾ × 17¼ in.)
From an impression in the possession of Dr. F. J. Poynton



NEW AEROSTATIC MACHINE,

_Being 65 Feet High, and 120 in Circumference, in which M. Le Chevr. de Moret will go up

the 10 of Augt. 1784.

The experiments of this Machine to be seen at Pimlico near Buckingham House, every Day at One o'Clock.

Publish'd as the Act directs by W. Skelton, No. 19 Portland Street Soho — 1 · 6 · Price 1s.

PLATE 37. COUNT MORET'S CHELSEA BALLOON. 1784
(14¼ × 10 in.)
From an impression in the Norman Collection at the Patent Office

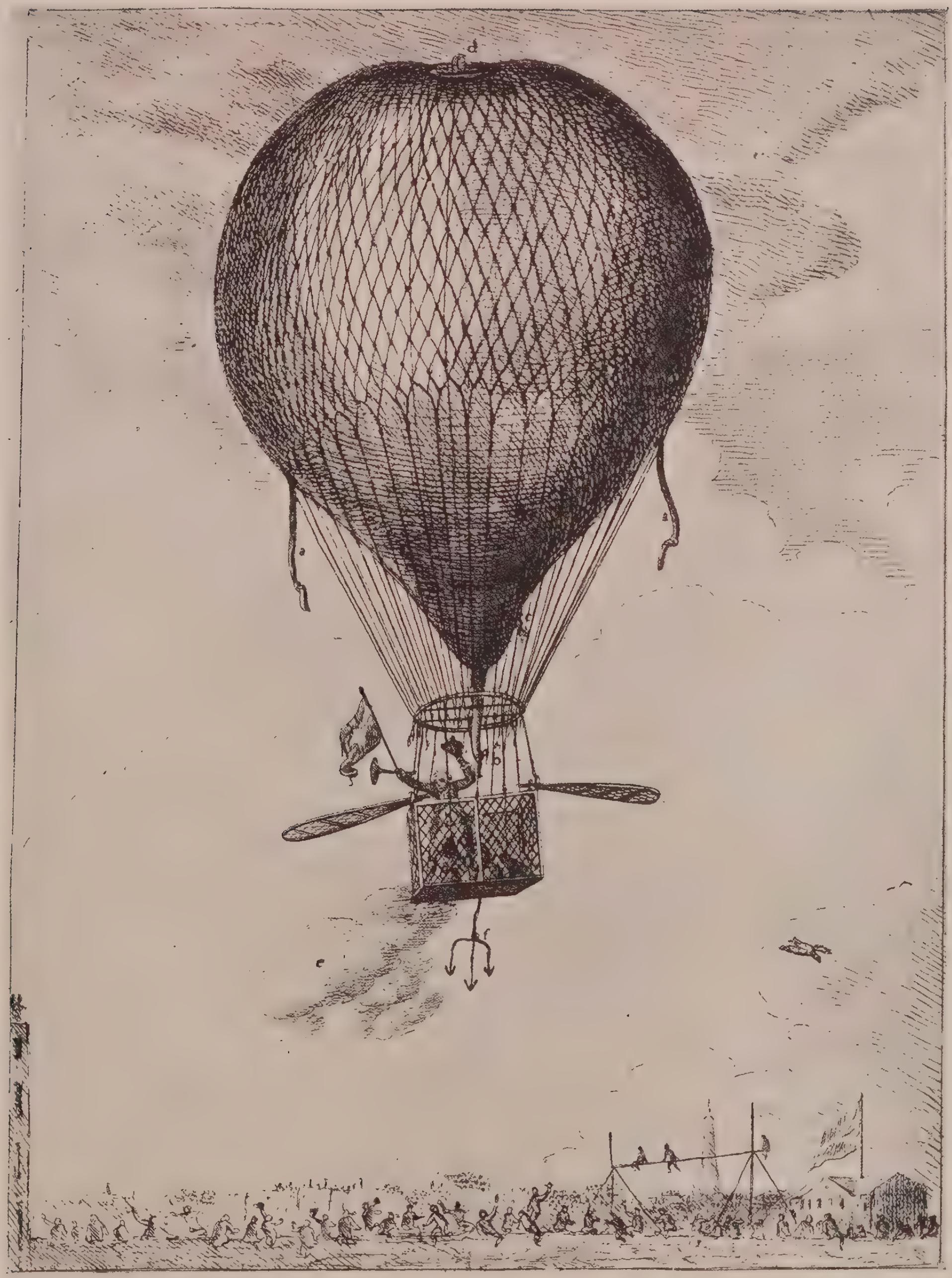


PLATE 38. THE FIRST ASCENT IN ENGLAND. 1784
(11⅓ × 8½ in.)
From an impression in the Bibliothèque Nationale, Paris

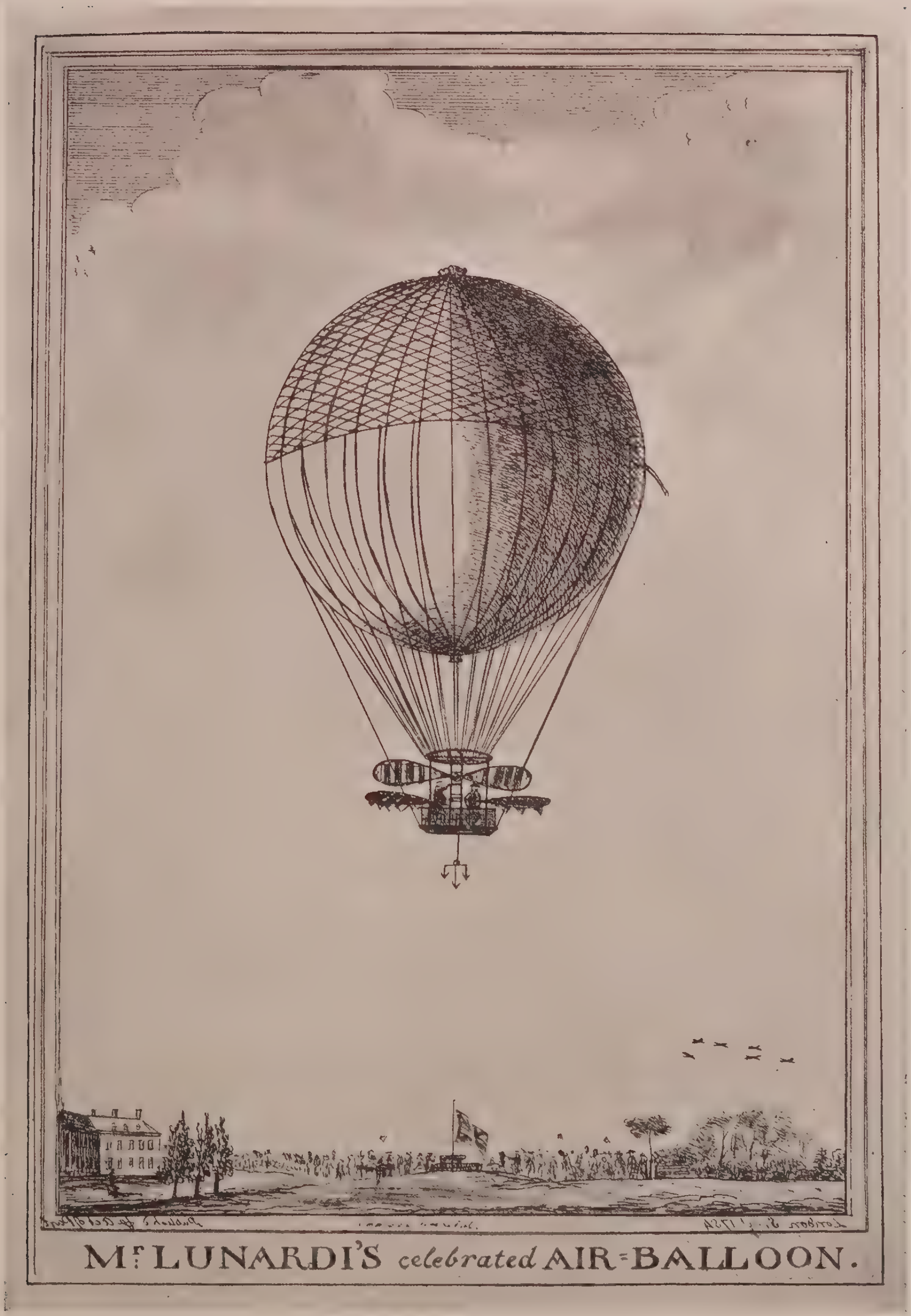

Mr. LUNARDI'S celebrated AIR=BALLOON.

PLATE 40. LUNARDI'S PROPOSED ASCENT. 1784
Second state of Plates 39 and 41. ($8\frac{1}{4} \times 5\frac{3}{4}$ in.)
From an impression in the Norman Collection at the Patent Office

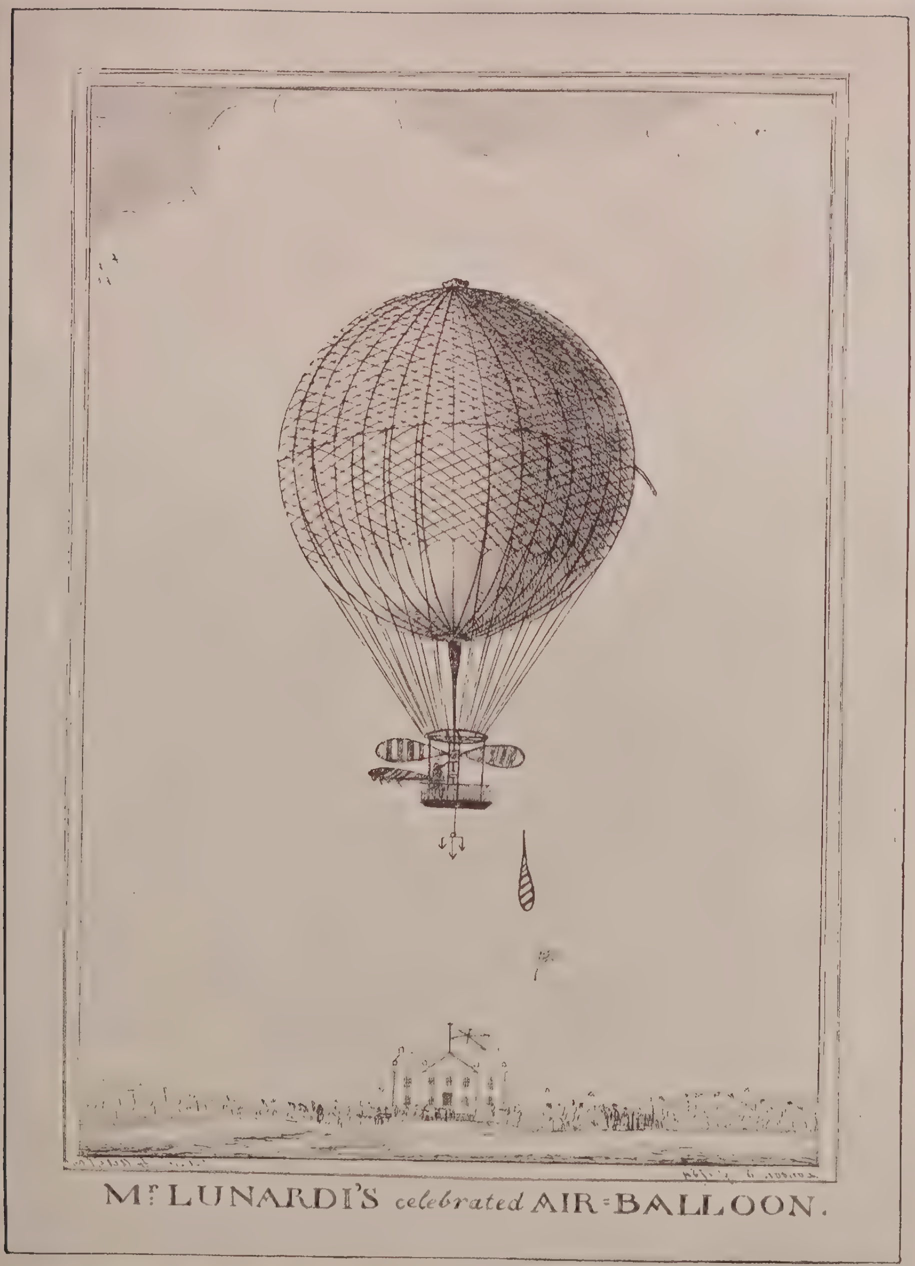

Mr LUNARDI'S celebrated AIR-BALLOON.

PLATE 41. LUNARDI'S ASCENT FROM THE HONOURABLE ARTILLERY COMPANY'S GROUND. 1784
Third state of Plates 39 and 40. (8¼ × 5¾ in.)
From an impression in the Norman Collection at the Patent Office

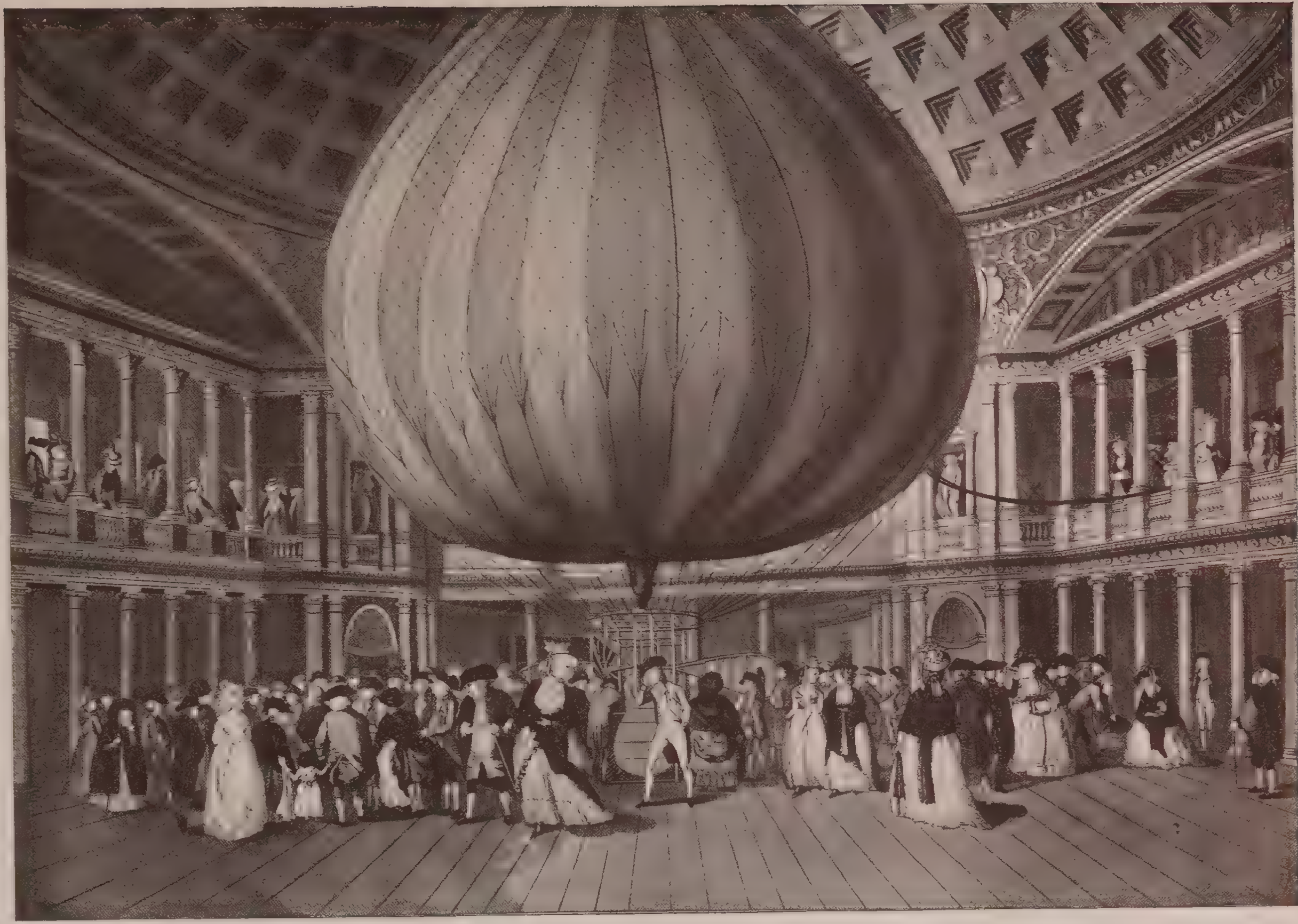


PLATE 42. LUNARDI'S BALLOON EXHIBITED AT THE PANTHEON. 1784
(15 × 21½ in.)
From an impression in the possession of Dr. F. J. Poynton

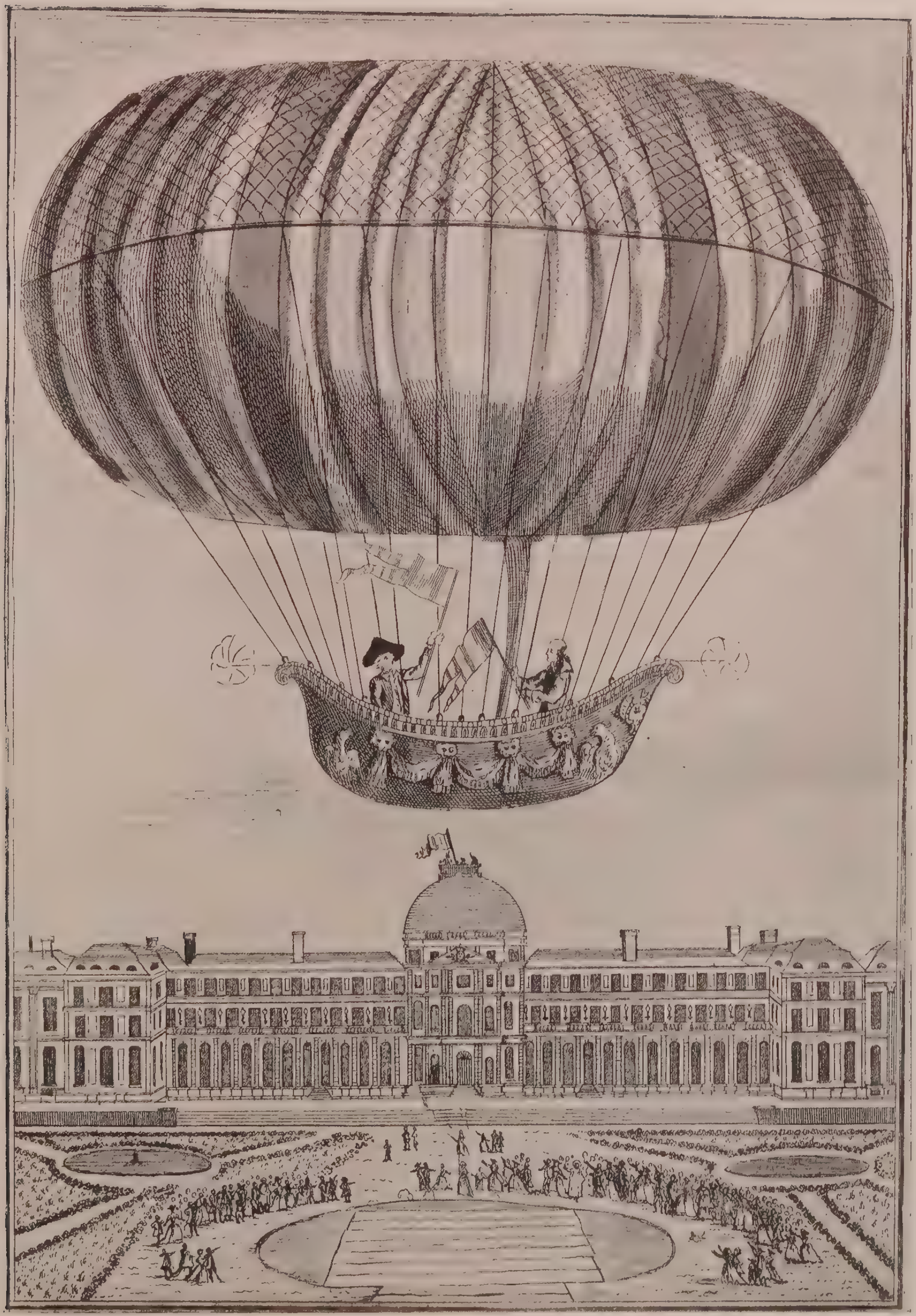


PLATE 43. THE SECOND CYLINDRICAL BALLOON. 1784
Second state of Plates 15 and 44. (10½ × 7¼ in.)
From an impression in the Cuthbert Collection

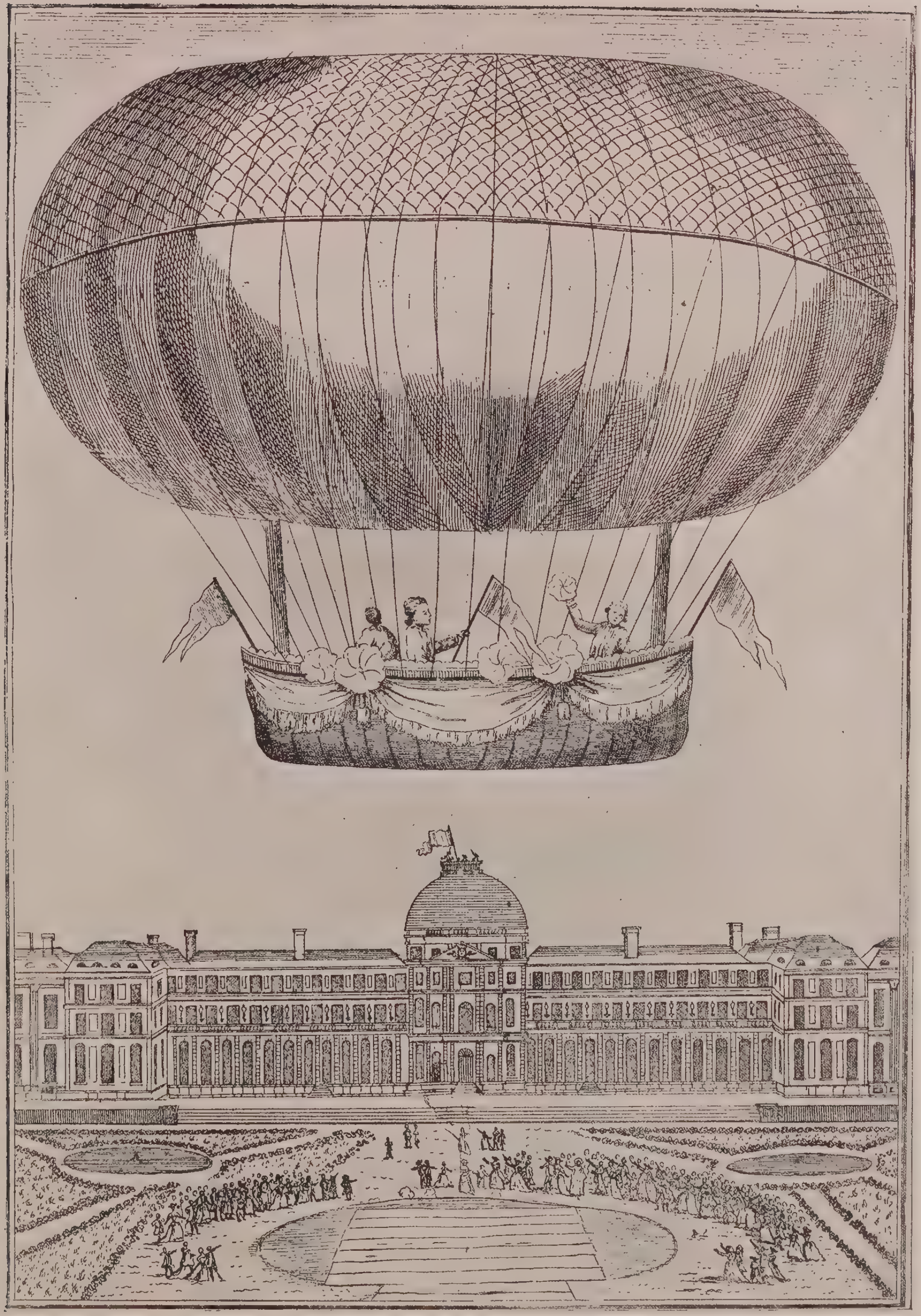


PLATE 44. THE SECOND CYLINDRICAL BALLOON. 1784
Third state of Plates 15 and 43. (10½ × 7¼ in.)
From an impression in the Cuthbert Collection

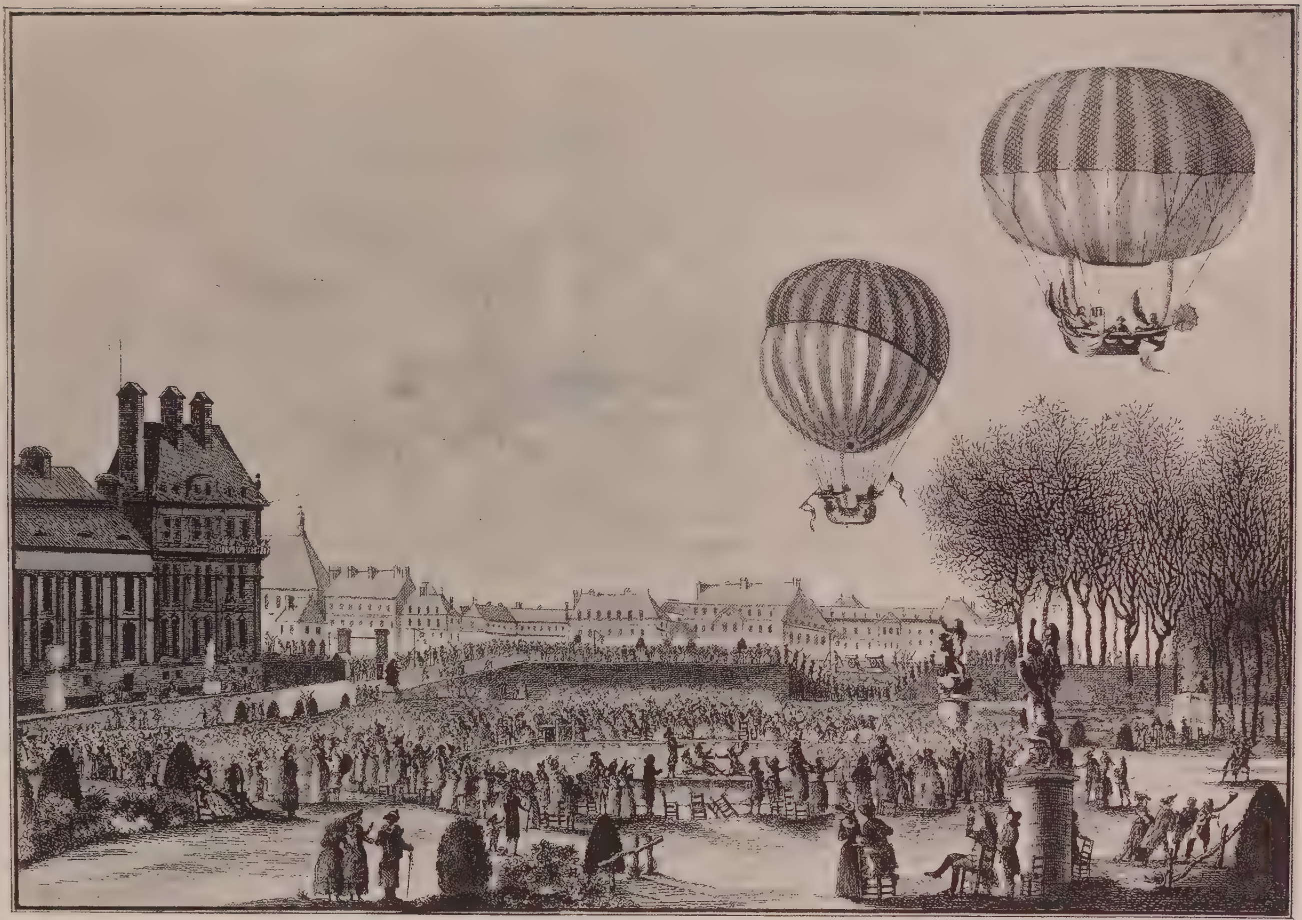


PLATE 45. THE SECOND CYLINDRICAL BALLOON RISING FROM THE TUILLERIES. 1784
Second state of Plate 16. (8¼ × 11¾ ins.)
From an impression in the Cuthbert Collection

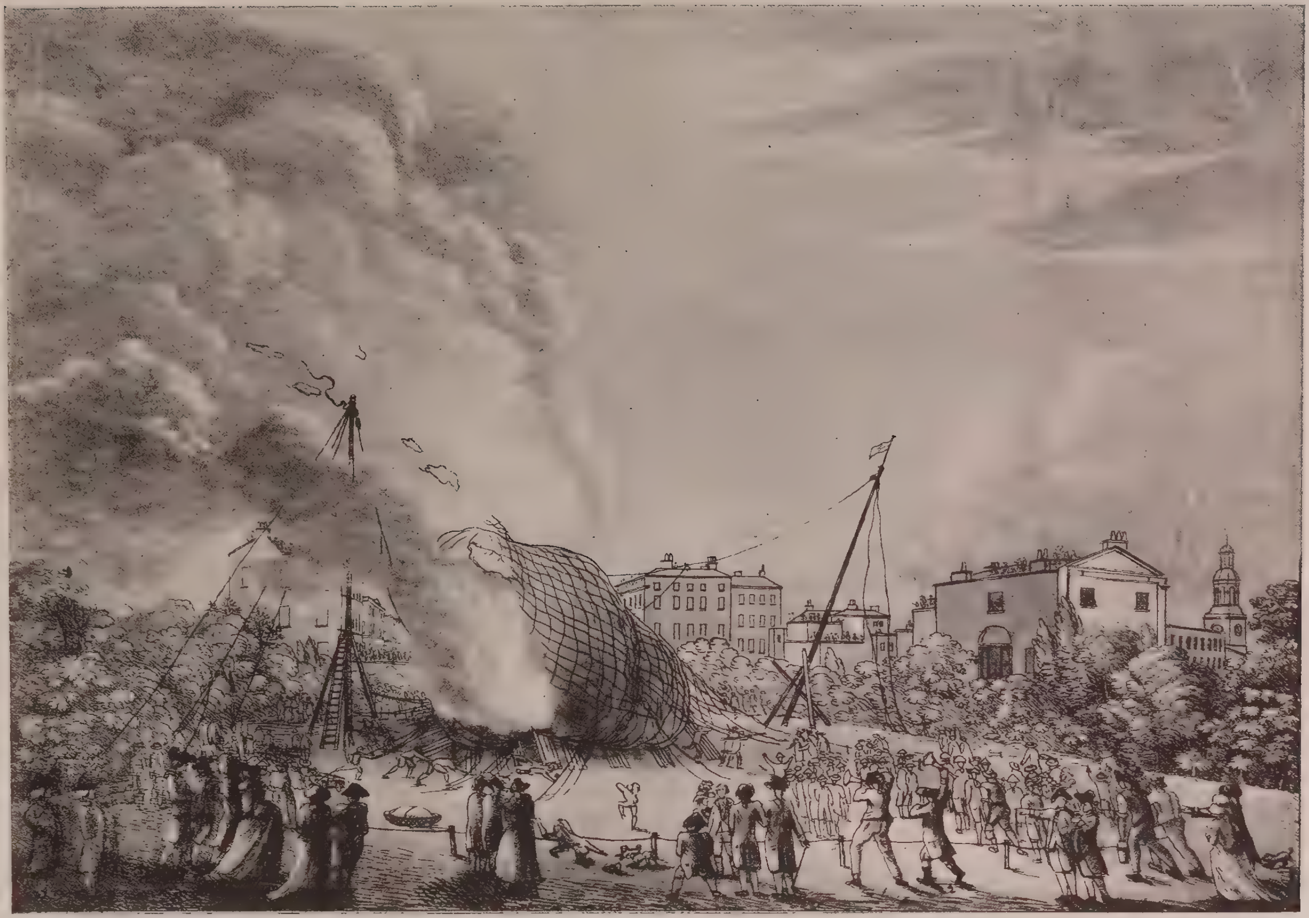


PLATE 46. THE BURNING OF KEEGAN'S BALLOON IN LORD FOLEY'S GARDEN. 1784
($9\frac{3}{4} \times 14$ in.)
From an impression in the possession of the Author

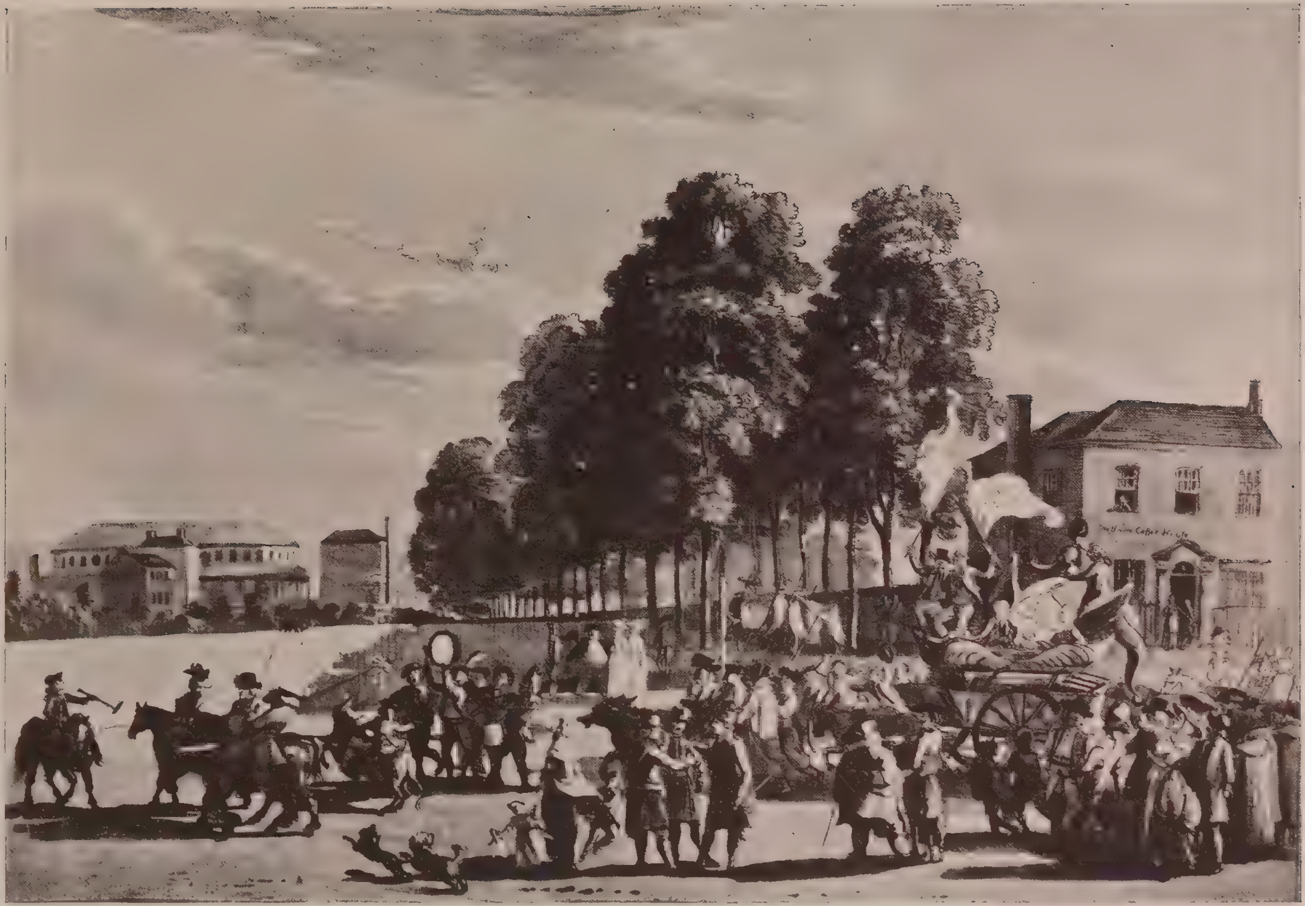
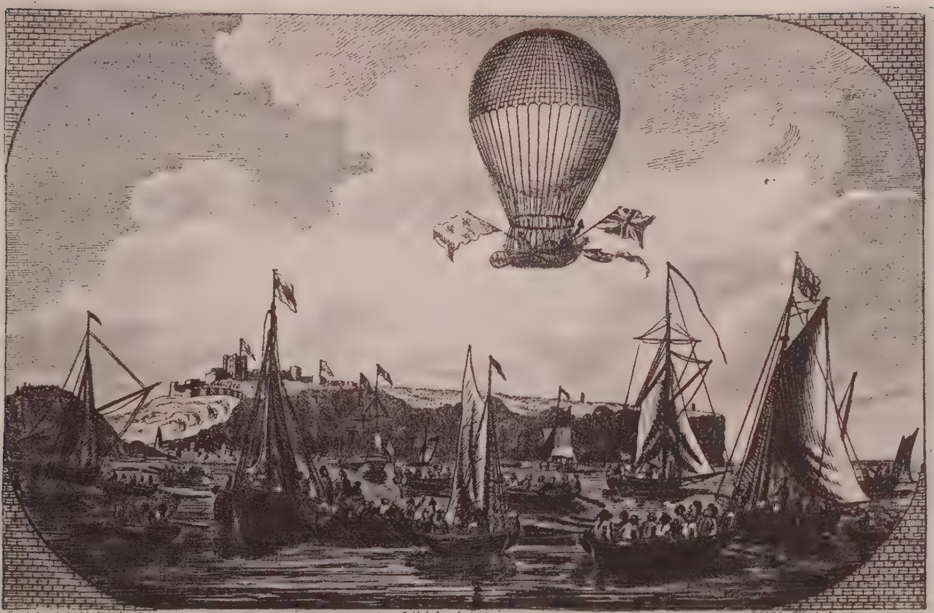


PLATE 47. A CARICATURE OF KEEGAN'S BALLOON PASSING ALONG PICCADILLY. 1784
From an impression in the Dollfus Collection

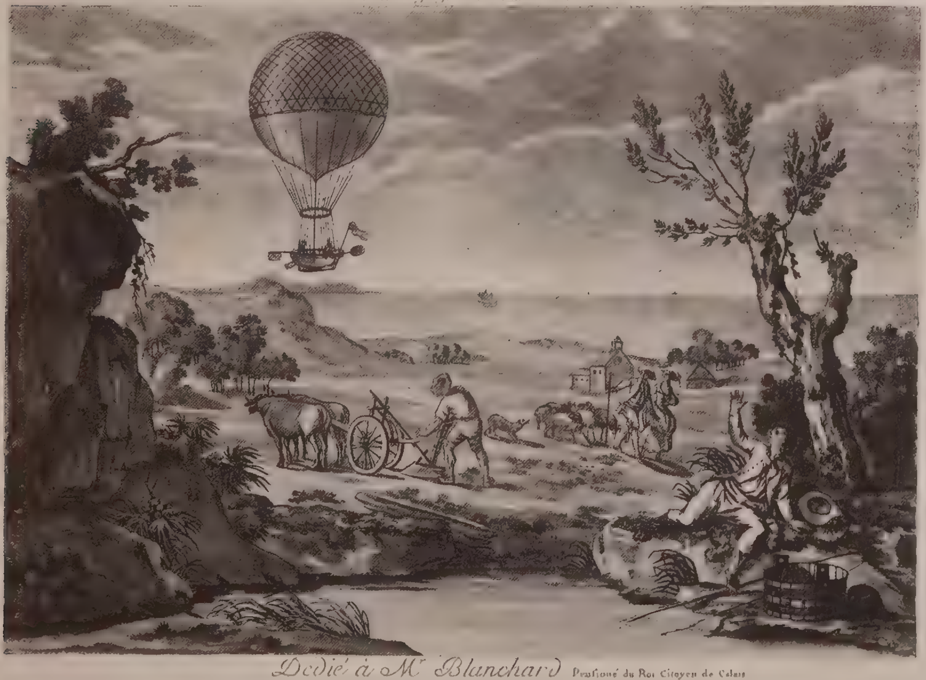


Printed and Sold by Bowles & Carver. Publish'd as the Act directs No. 69 in St. Paul's Church Yard, London

An exact Representation of the departure of Mons.r Blanchard and Doct.r Jeffries, from Dover Caſtle on Jan.ry 7th 1785 with the Veſsels attending them on the occasion.

(6 × 9¼ in.)

Premier Paſsage Aerien de la Mer



Dedié à M.r Blanchard Pensioné du Roi Citoyen de Calais

APPARITION DU GLOBE AEROSTATIQUE DE M.r BLANCHARD ENTRE CALAIS ET BOULOGNE

parti de Douvres le 7 de Janvier 1785 à 1 heure ½.

(9¾ × 13½ in.)

PLATE 49. THE FIRST CHANNEL CROSSING. 1785

From impressions in the Cuthbert Collection

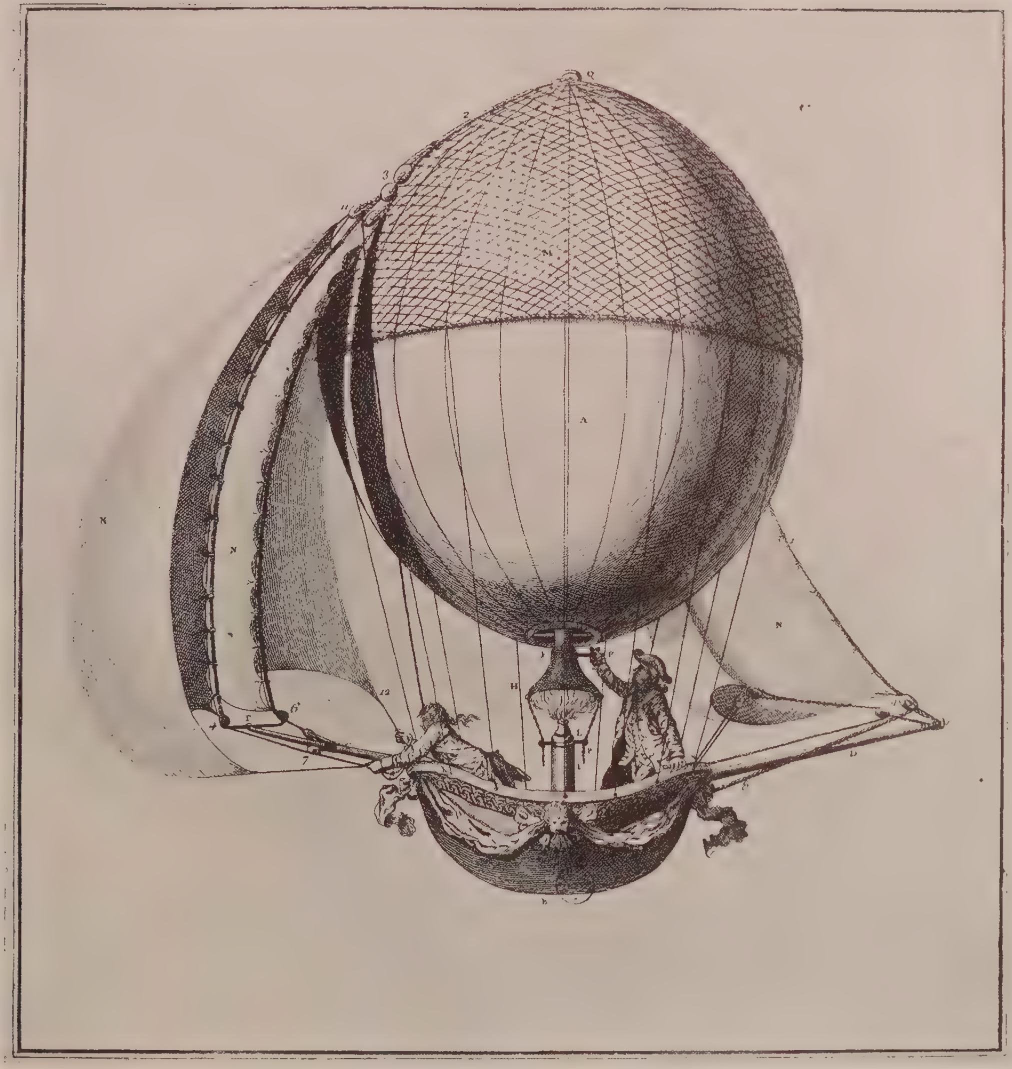


PLATE 50. AN EARLY ATTEMPT AT DIRIGIBILITY. *Circa* 1785
(9 × 8½ in.)
From an impression in the Bibliothèque Nationale, Paris

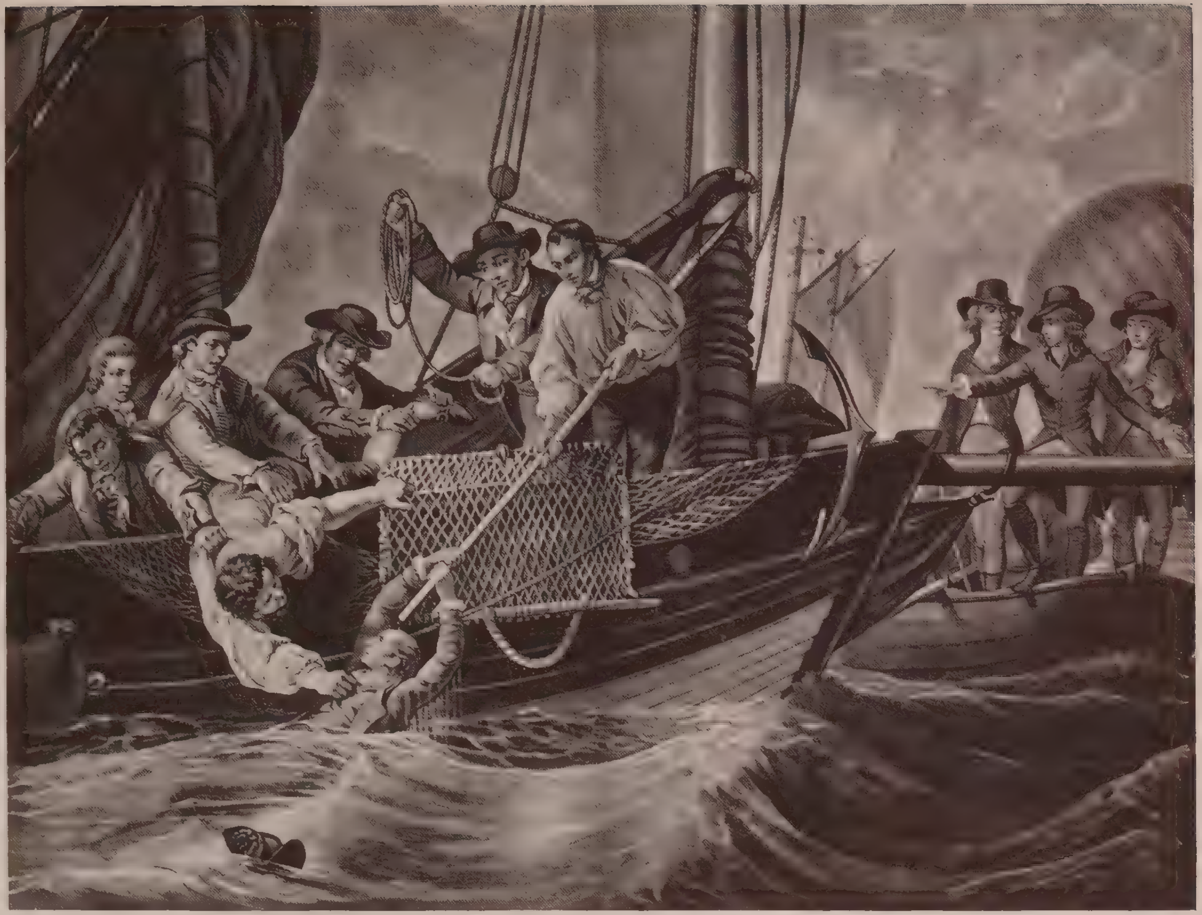
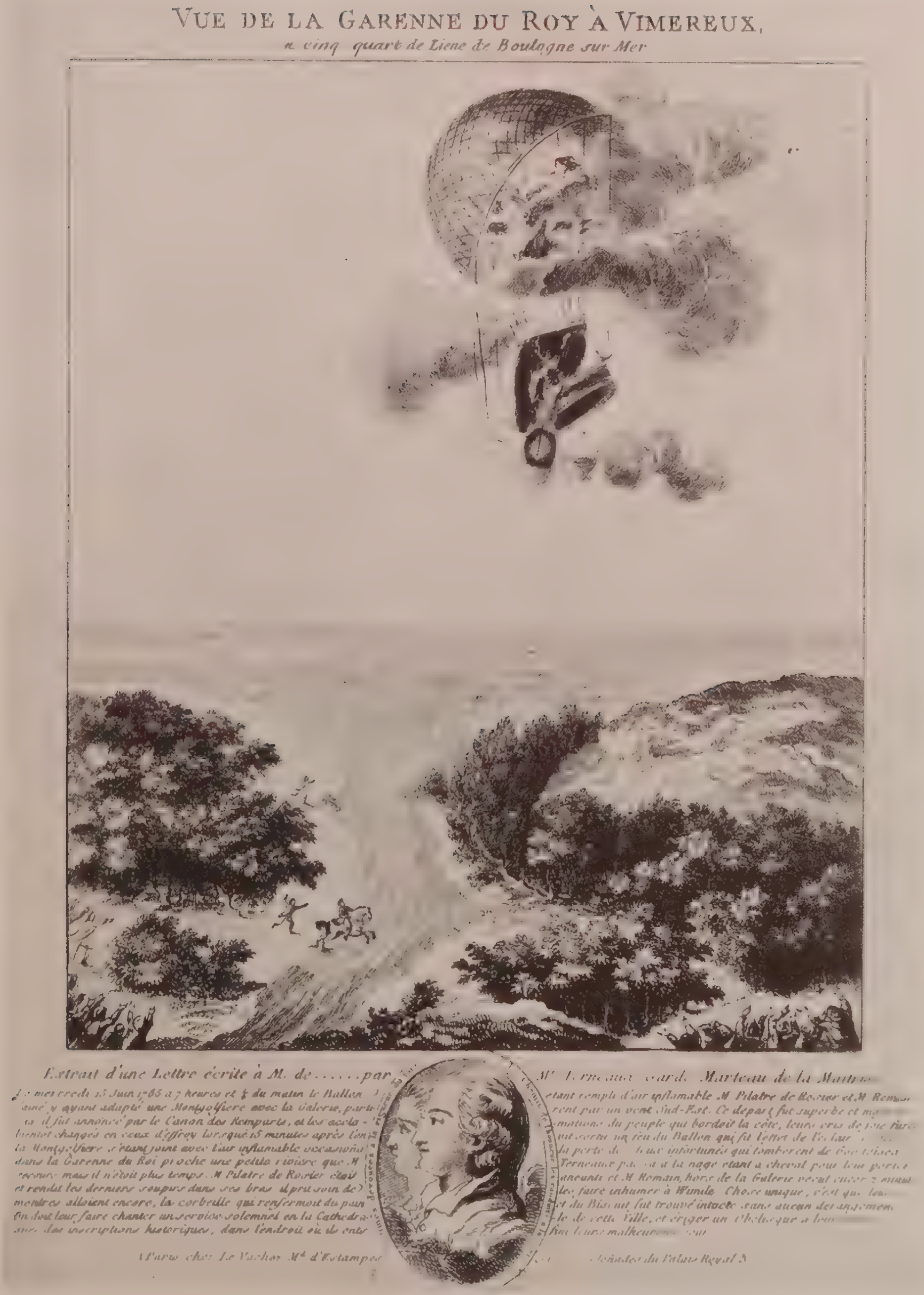


PLATE 52. THE PRESERVATION OF SIR RICHARD MacGUIRE. 1785
(18 × 24 in.)
From an impression in the Norman Collection at the Patent Office



VUE DE LA GARENNE DU ROY À VIMEREUX,
a cinq quart de Lieue de Boulogne sur Mer

Extrait d'une Lettre écrite à M. de ...... par Mr Terneaux Gard. Marteau de la Maitri

Le mercredi 15 Juin 1785 à 7 heures et ½ du matin le Ballon [illegible] étant rempli d'air inflamable M Pilatre de Rozier et M Romain
ainé y ayant adapté une Montgolfiere avec la Galerie, partirent par un vent Sud-Est. Ce depart fut superbe et m
[illegible] il fut annoncé par le Canon des Remparts, et les acclamations du peuple qui bordoit la côte, leurs cris de joie furent
bientot changés en ceux d'effroy lorsque 15 minutes après l'on vit sortir un feu du Ballon qui fit l'effet de l'eclair [illegible]
la Montgolfiere s'étant joint avec l'air inflamable occasionna la perte de[s] deux infortunés qui tomberent de 600 toises
dans la Garenne du Roi proche une petite riviere que M Terneaux pa[illegible] a la nage étant a cheval pour leur porter
secours mais il n'étoit plus temps. M Pilatre de Rozier étoit aneanti et M Romain, hors de la Galerie vecut encor 2 minut
et rendit les derniers soupirs dans ses bras. après soin de les faire inhumer à Wimile. Chose unique, c'est que leu
montres alloient encore, la corbeille qui renfermoit du pain et du Biscuit fut trouvé intacte sans aucun derangement
On doit leur faire chanter un service solemnel en la Cathedrale de cette Ville, et ériger un Obelisque a leur
avec des inscriptions historiques, dans l'endroit où ils ont fini leurs malheureu[illegible]

A Paris chez Le Vachez Md d'Estampes [illegible] Arcades du Palais Royal 3

PLATE 53. THE FIRST BALLOONING FATALITY. 1785
From an impression in the Dollfus Collection

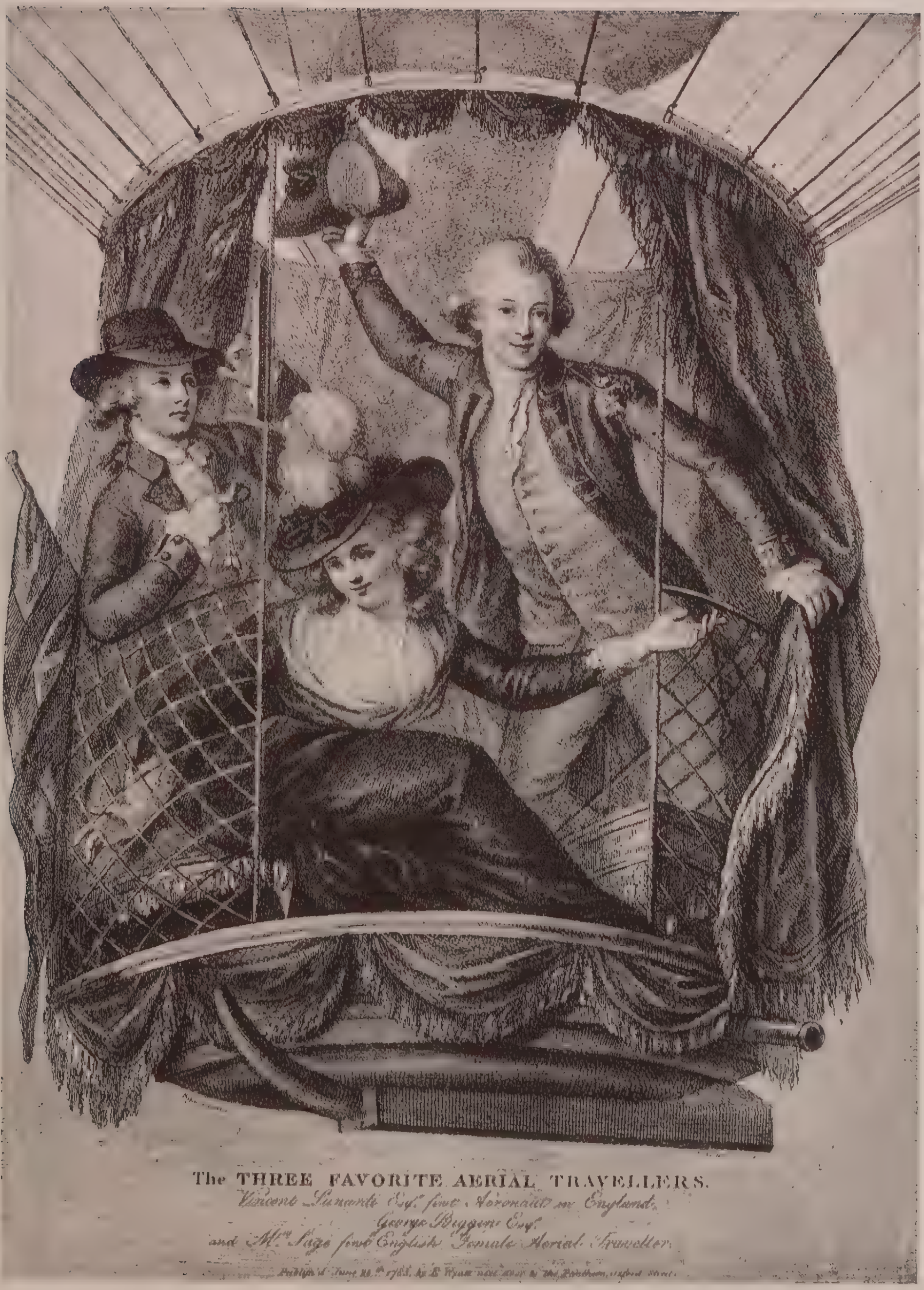

The THREE FAVORITE AERIAL TRAVELLERS.
Vincent Lunardi Esqr. first Aeronaut in England,
George Biggin Esqr.
and Mrs. Sage first English Female Aerial Traveller.
Publish'd June 28th 1785, by E. Wyatt next door to the Pantheon, Oxford Street.

PLATE 54. LUNARDI, MRS. SAGE AND BIGGIN. 1785
Second state (13 × 9½ in.)
From an impression in the Cuthbert Collection

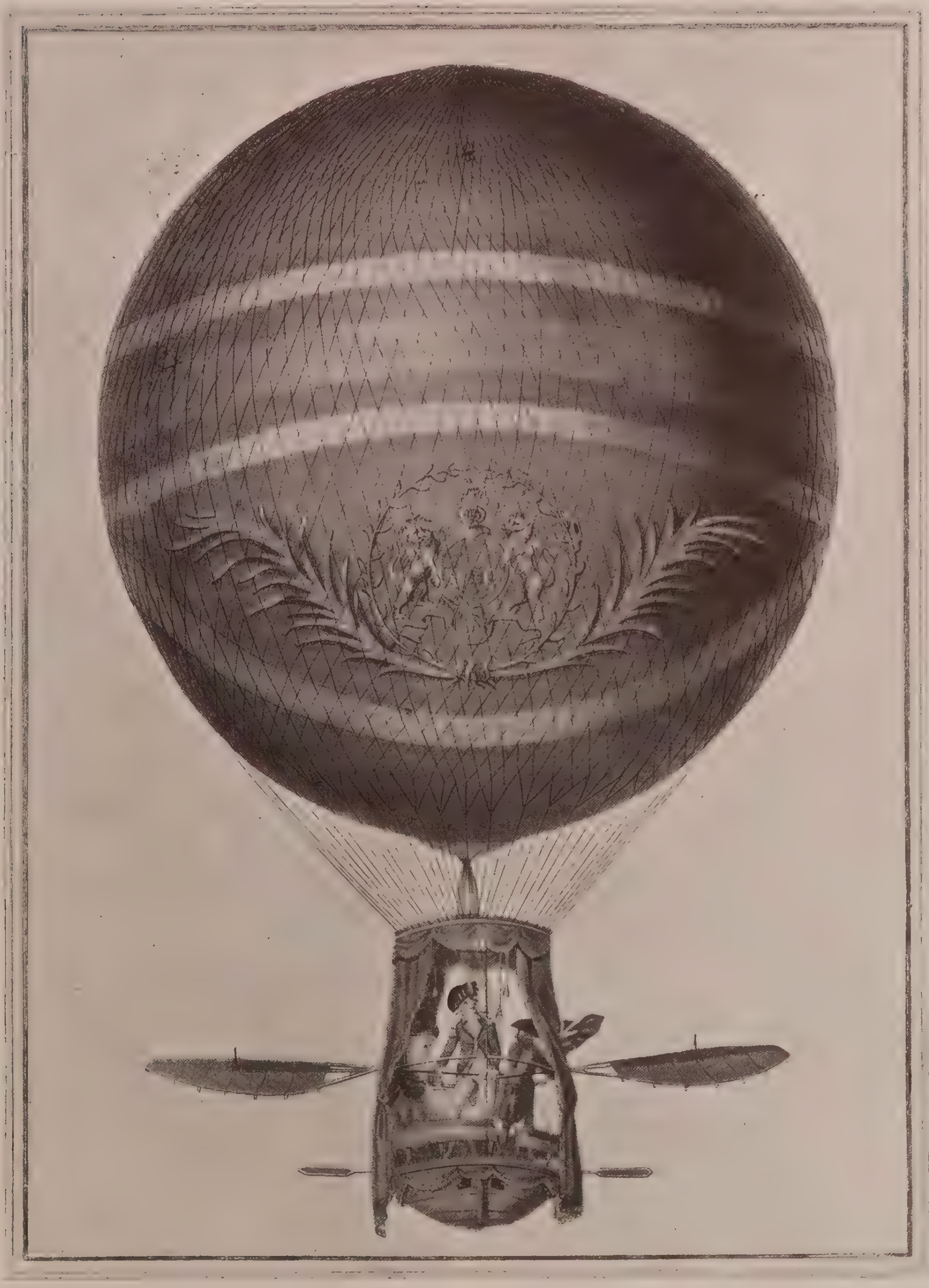


PLATE 55. THE ST. GEORGE'S FIELDS BALLOON. 1785
(17¾ × 12¾ in.)
From an impression in the possession of Messrs. Maggs Bros.

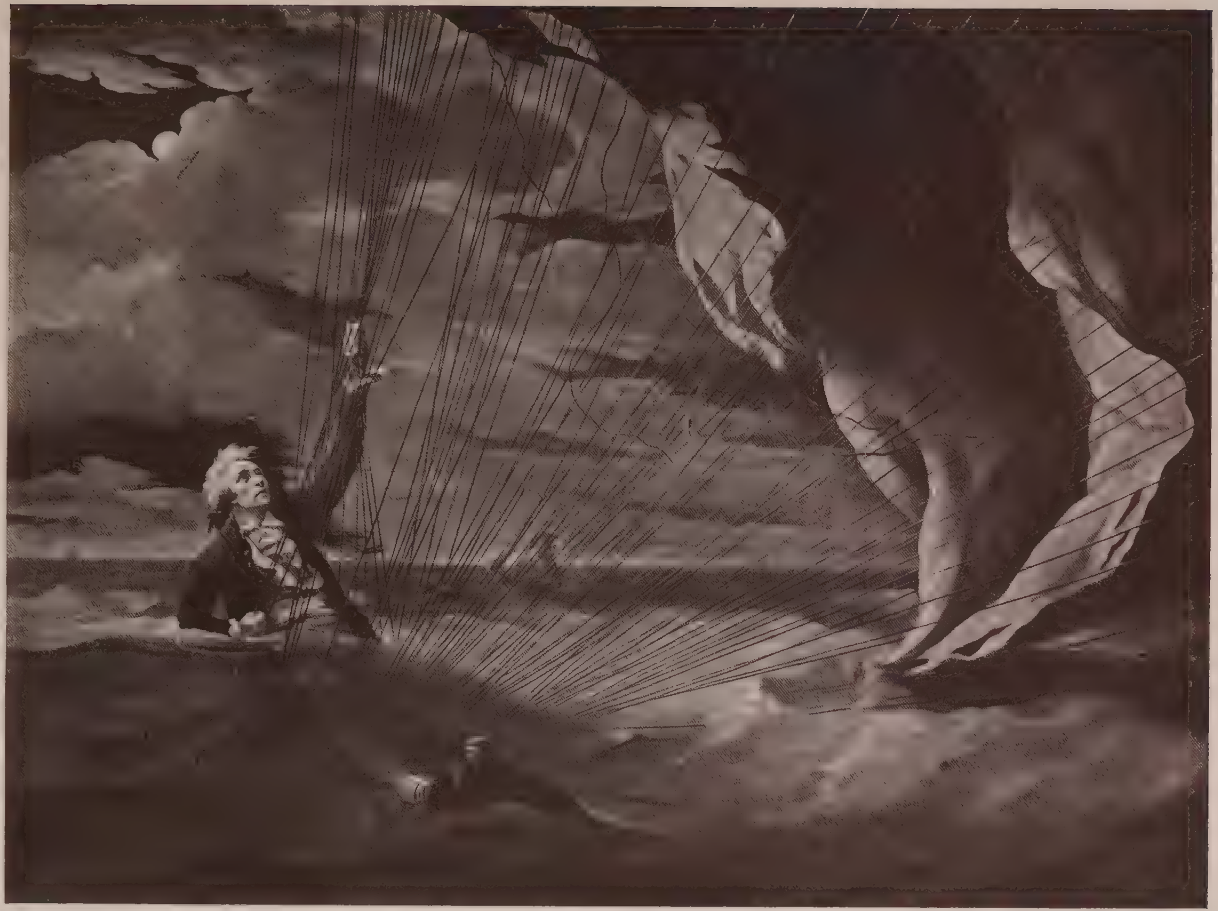


PLATE 56. THE PERILOUS SITUATION OF MAJOR MONEY. 1785
(18 × 24 in.)
From an impression in the possession of Messrs. Maggs Bros.

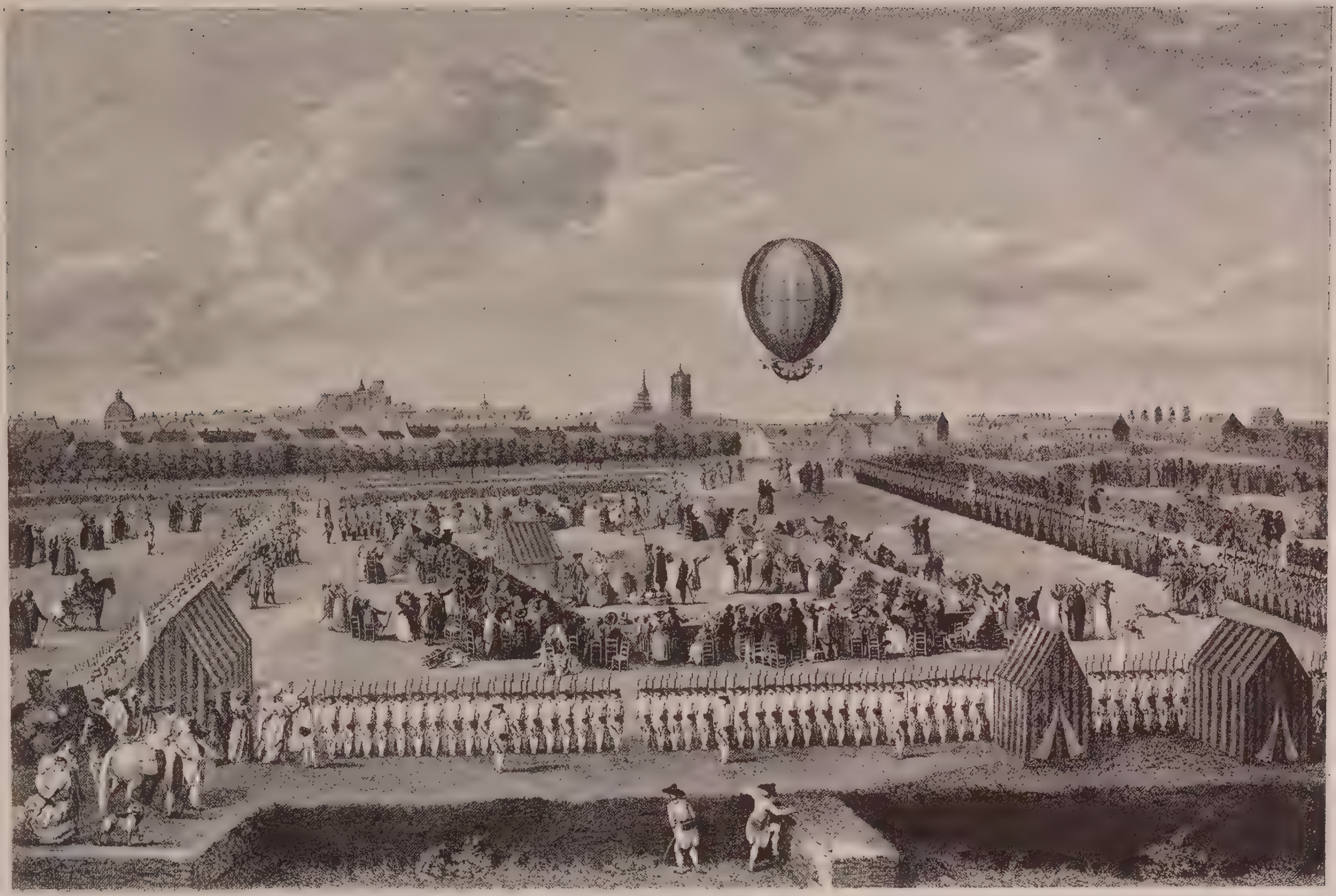


PLATE 57. THE ASCENT OF BLANCHARD AND LÉPINARD FROM LILLE. 1785
(11¼ × 17 in.)
From an impression in the possession of the Author

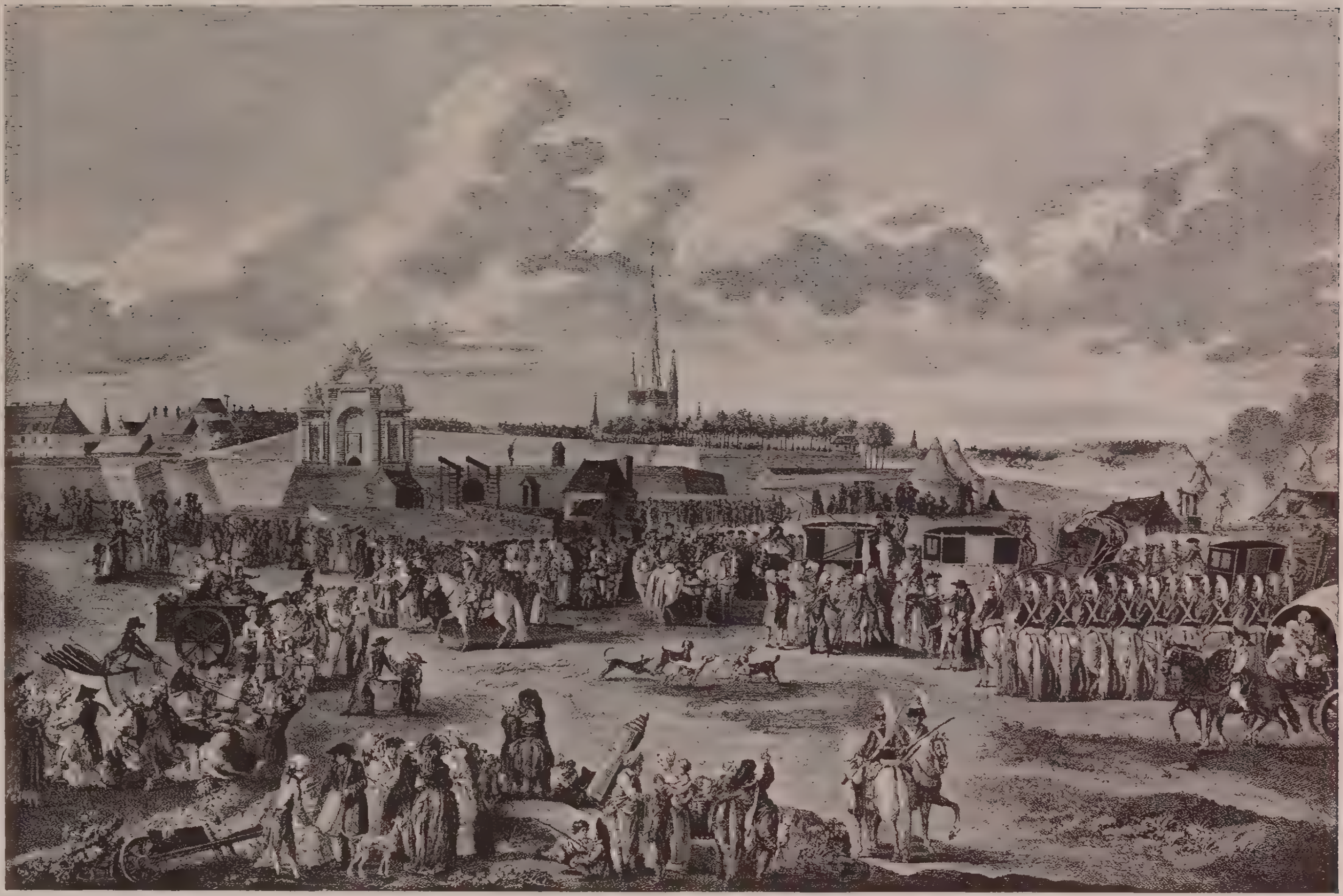


PLATE 58. THE RETURN OF BLANCHARD AND LÉPINARD TO LILLE. 1785
(11¼ × 17 in.)
From a proof before all letters in the possession of Messrs. Maggs Bros.

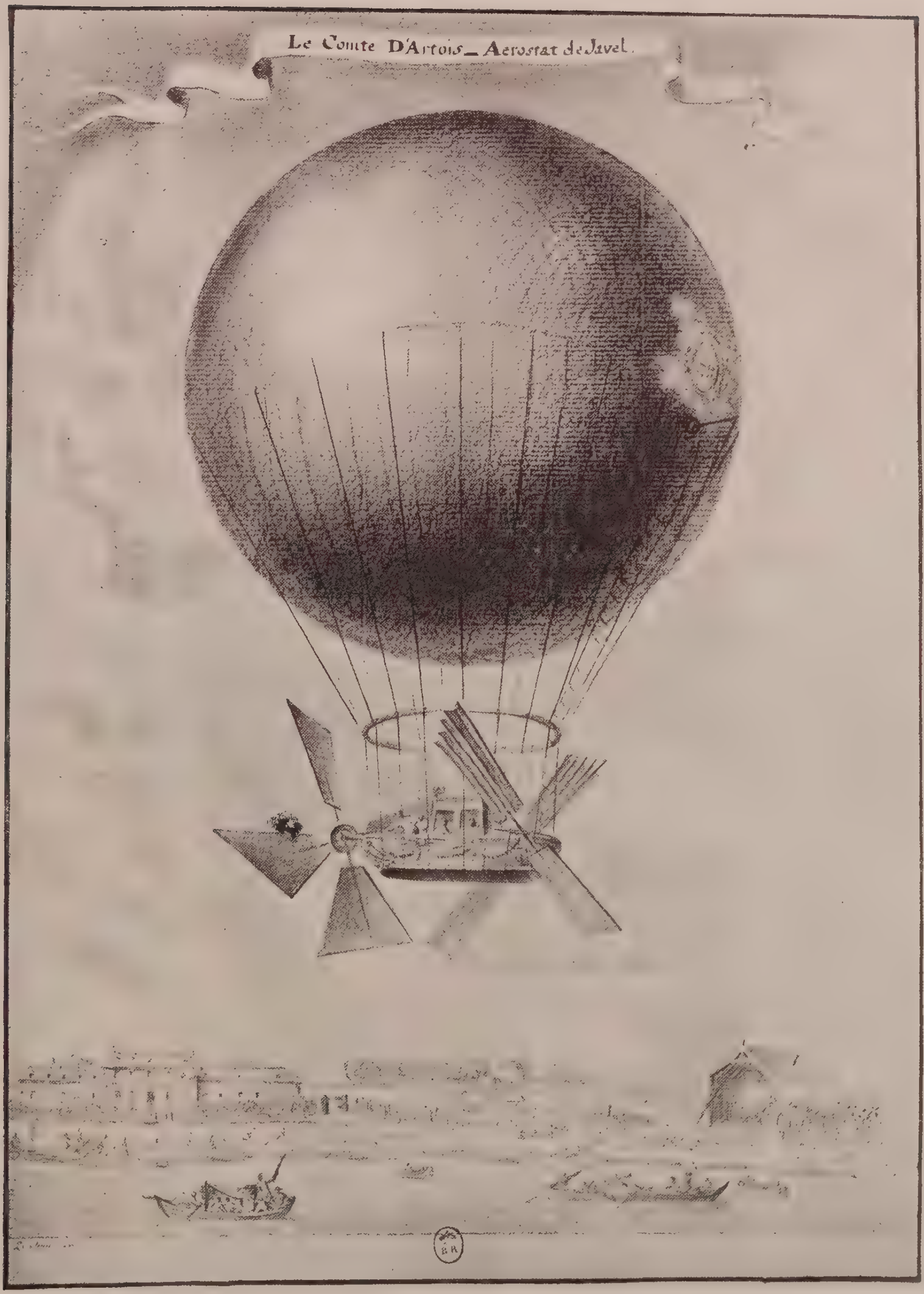

Le Comte D'Artois _ Aerostat de Javel.

PLATE 59. THE BALLOON OF ALBAN AND VALLET. 1785
From an impression in the Bibliothèque Nationale, Paris

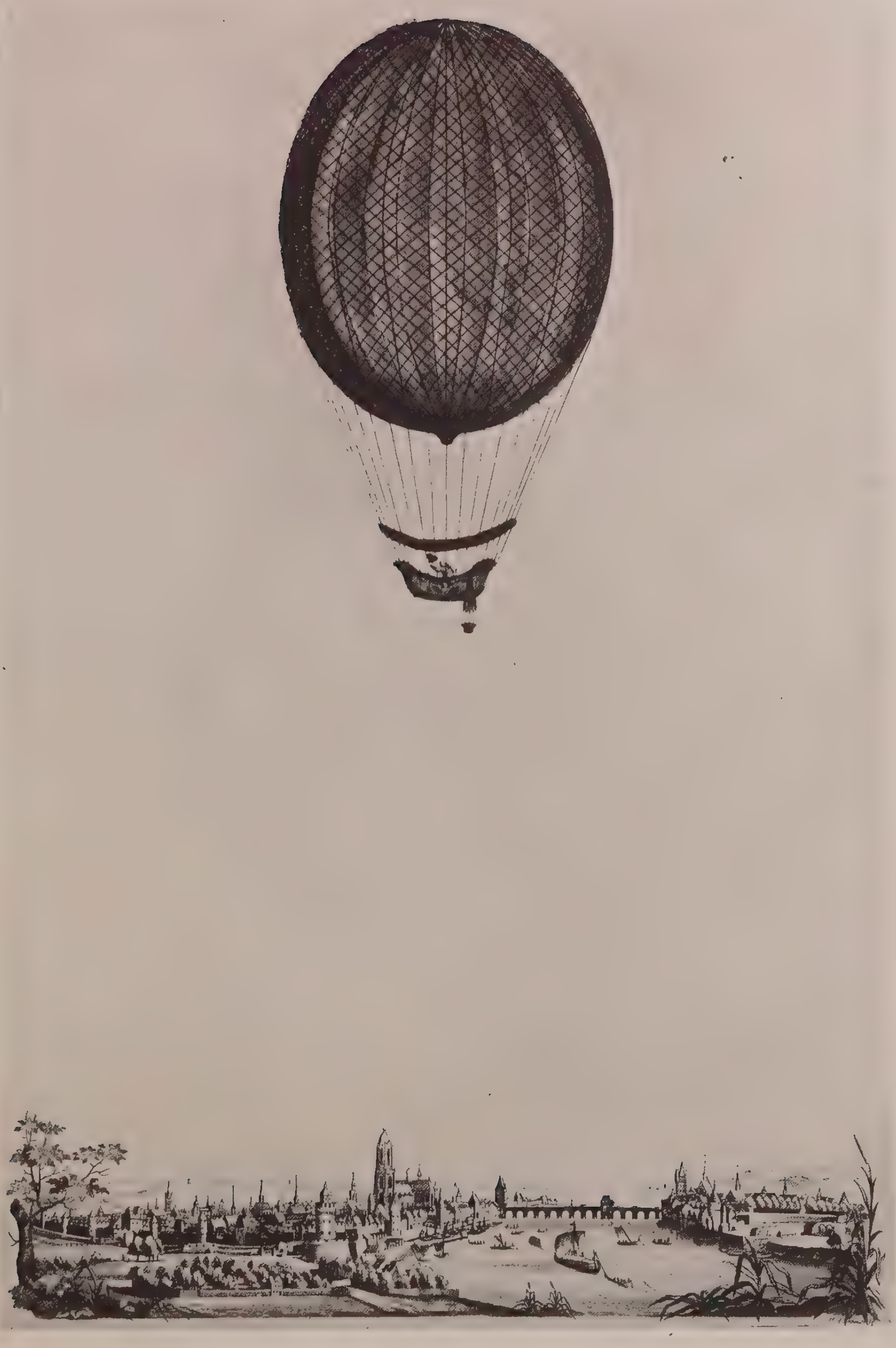


PLATE 60. BLANCHARD'S FRANKFORT ASCENT. 1785
(16 × 11½ in.)
From an impression in the Musée Carnavalet

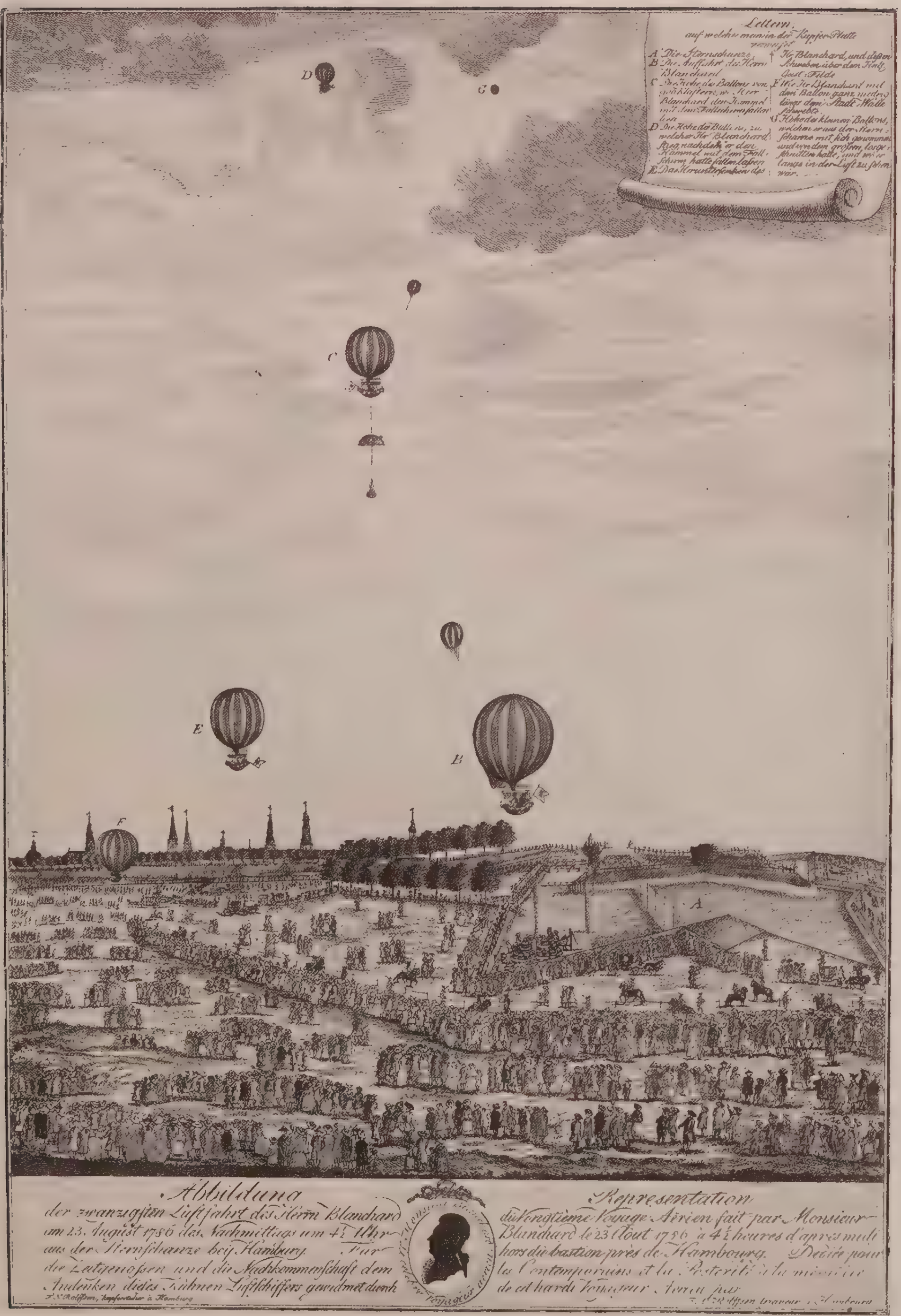

Lettern, auf welche man in der Kupfer Platte verweiſet
A Die Sternſchanze
B Die Auffahrt des Herrn Blanchard
C Die Höhe des Ballons von 300 Klaftern, wo Herr Blanchard den Hammel mit dem Fallschirm fallen ließ
D Die Höhe des Ballons, zu welcher Hr Blanchard ſtieg, nachdem er den Hammel mit dem Fallſchirm hatte fallen laſsen
E Das Heruntersenken des Hr Blanchard, und deſsen Schweben über dem Holſt. Geiſt Felde
F Wie Hr Blanchard mit dem Ballon ganz niedrig längs dem Stadt Walle schwebte
G Höhe des kleinen Ballons, welchen er aus der Sternſchanze mit ſich genommen und von dem großen losgeſchnitten hatte, und wie er lange in der Luft zu ſehen war.
A
B
C
D
E
F
G
Abbildung
der zwanzigſten Luſtfahrt des Herrn Blanchard am 23. August 1786 des Nachmittags um 4½ Uhr aus der Sternſchanze bey Hamburg. Für die Zeitgenoſsen und die Nachkommenſchaft dem Andenken dieses Kühnen Luftſchiffers gewidmet durch
J. N. Rolffsen, Kupferstecher à Hamburg
Representation
du Vingtieme Voyage Aërien fait par Monsieur Blanchard le 23 Aout 1786 à 4½ heures d'apres midi hors du bastion près de Hambourg. Dedié pour les Contemporains et la Posterité à la memoire de cet hardi Voyageur Aerien par
J. N. Rolffsen Graveur à Hambourg

PLATE 61. BLANCHARD'S HAMBURG ASCENT. 1786
(14 × 9½ in.)
From an impression in the possession of Messrs. Maggs Bros.

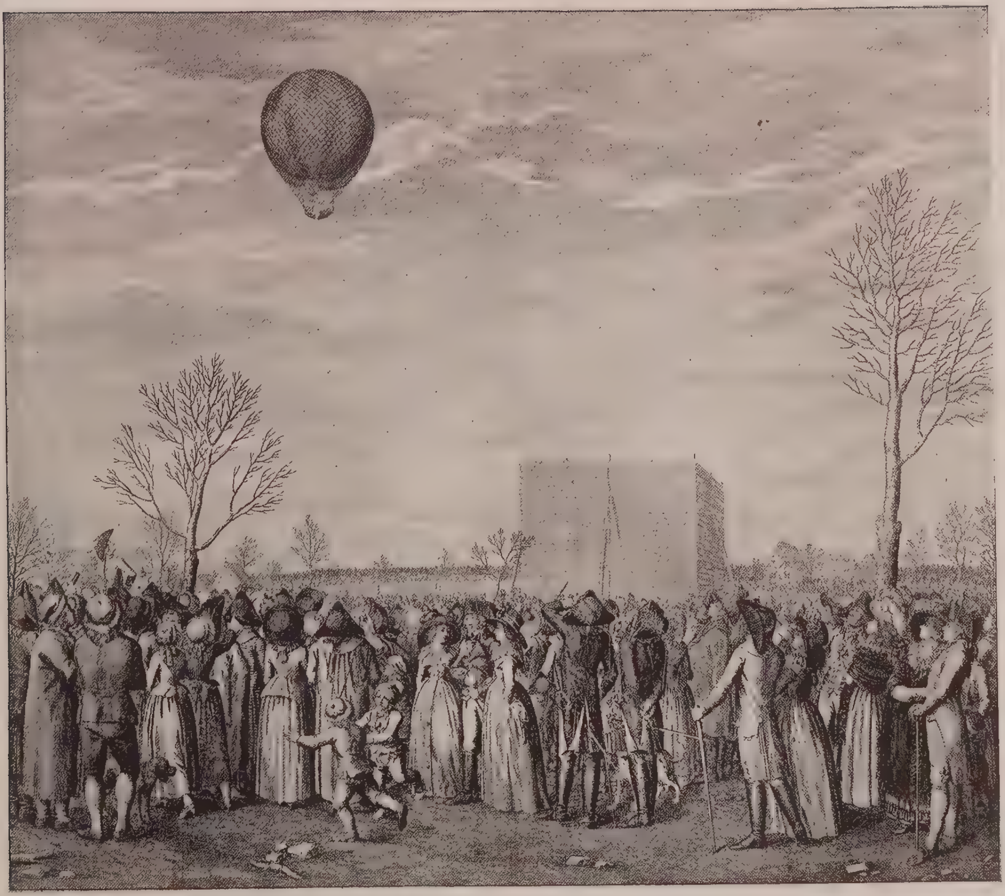


PLATE 62. BLANCHARD'S NUREMBERG ASCENT. 1787
(11 × 12½ in.)
From an impression in the Cuthbert Collection

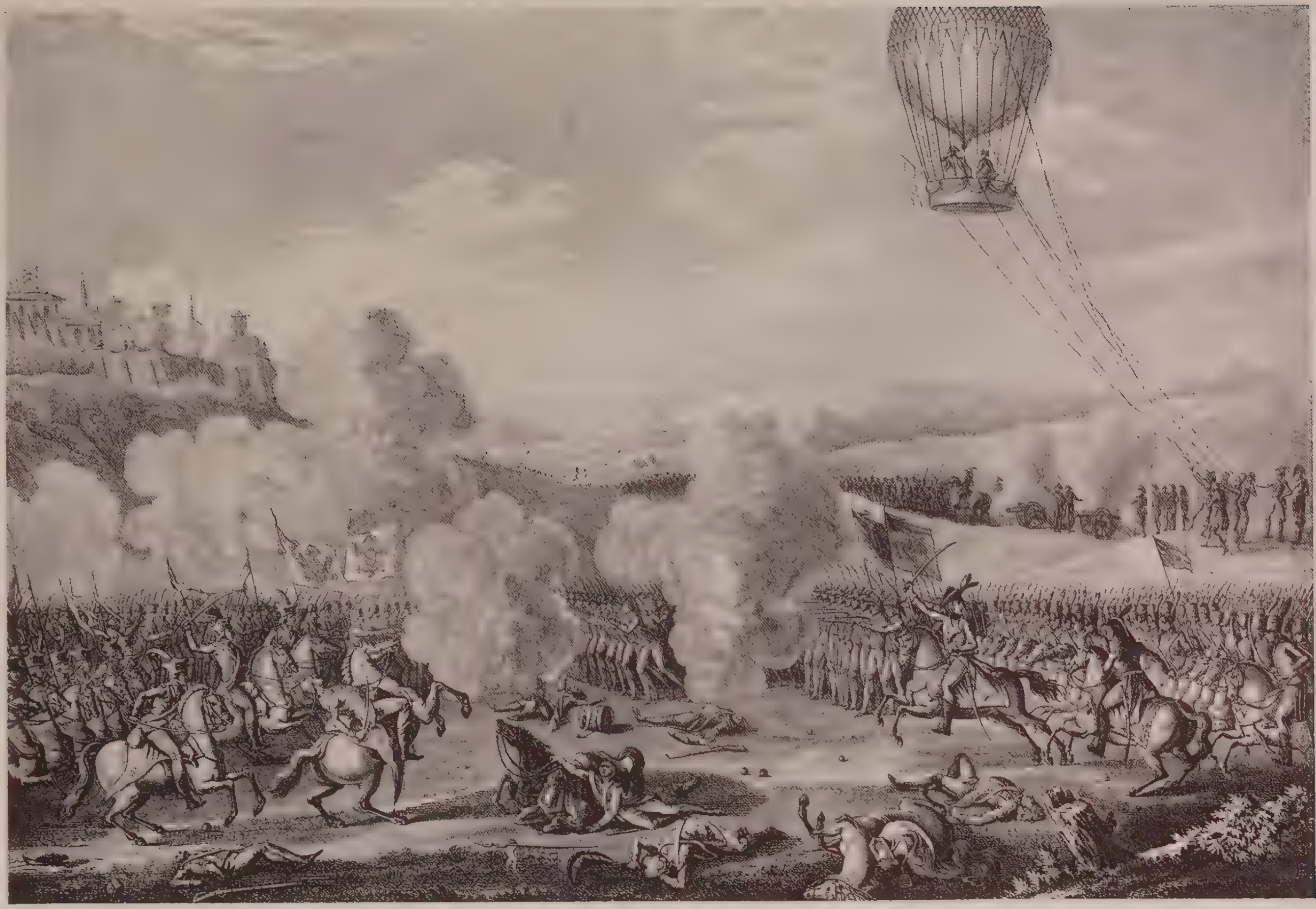
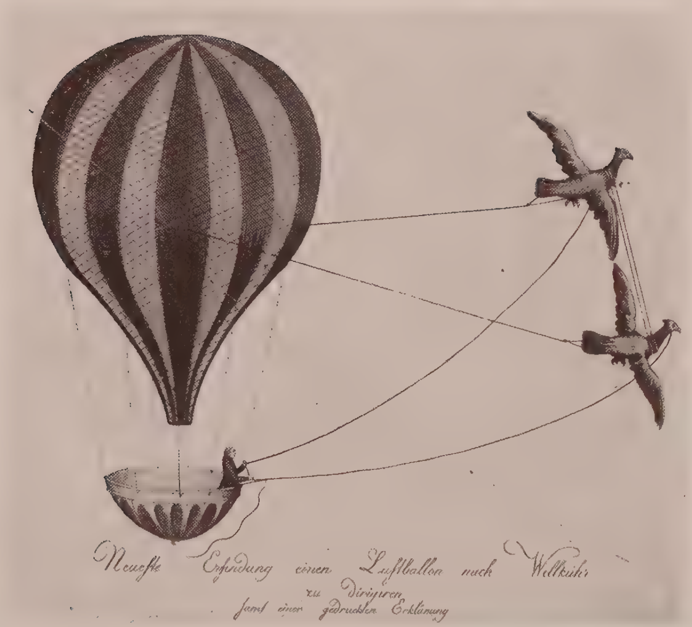
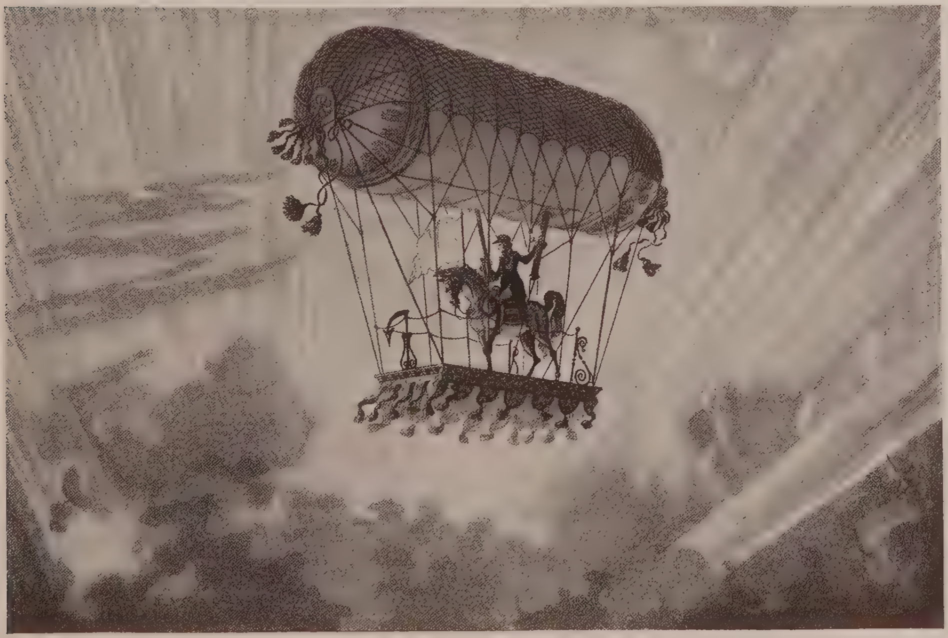


PLATE 64. THE BATTLE OF FLEURUS. 1794
(13 × 19 in.)
From an impression in the Cuthbert Collection


Neueſte Erfindung einen Luftballon nach Willkühr
zu dirigiren
ſamt einer gedruckten Erklärung

" THE LATEST INVENTION FOR STEERING AN AIR BALLOON AT WILL." (10¼ × 12 in.)
From an Austrian book (1801) in the possession of the Royal Aeronautical Society



AN EQUESTRIAN ASCENT BY TESTU BRISSY. 1798. (6 × 4 in.)
From an impression in the Cuthbert Collection

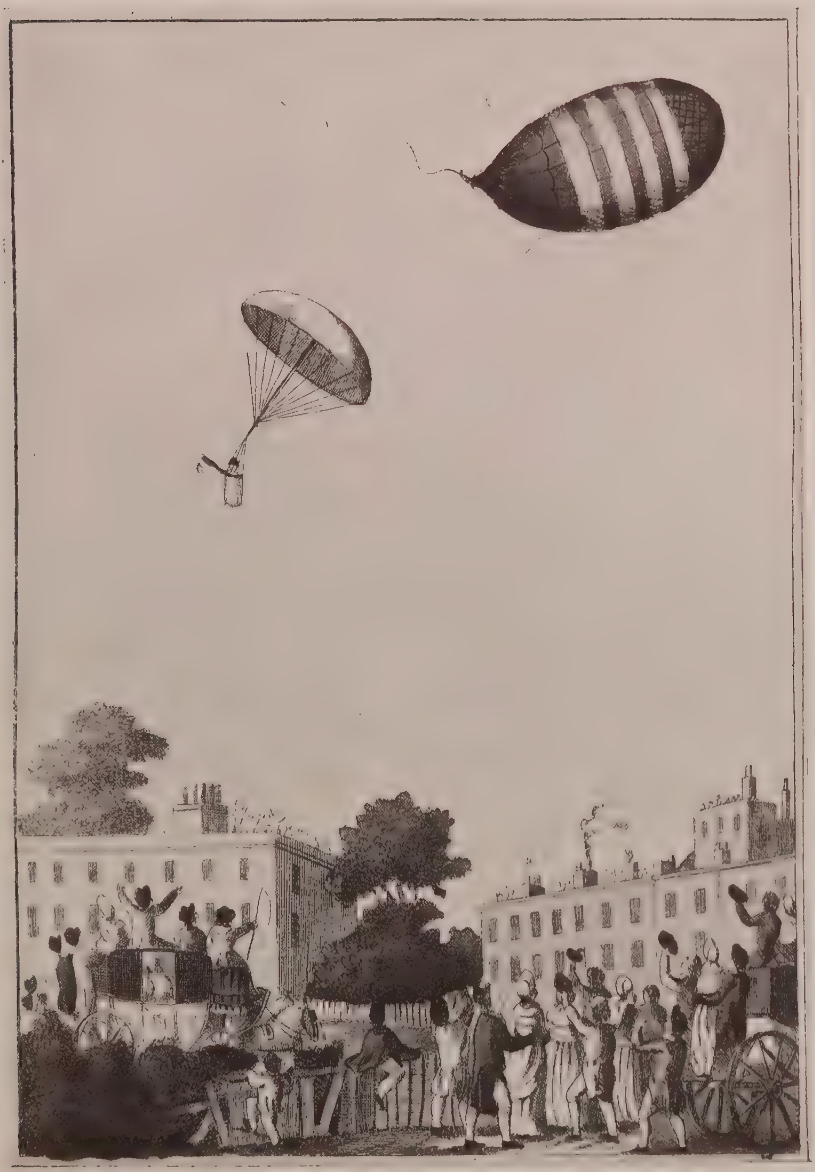


PLATE 66. THE FIRST PARACHUTE DESCENT IN ENGLAND. 1802
(6¾ × 4½ in.)
From an impression in the Cuthbert Collection

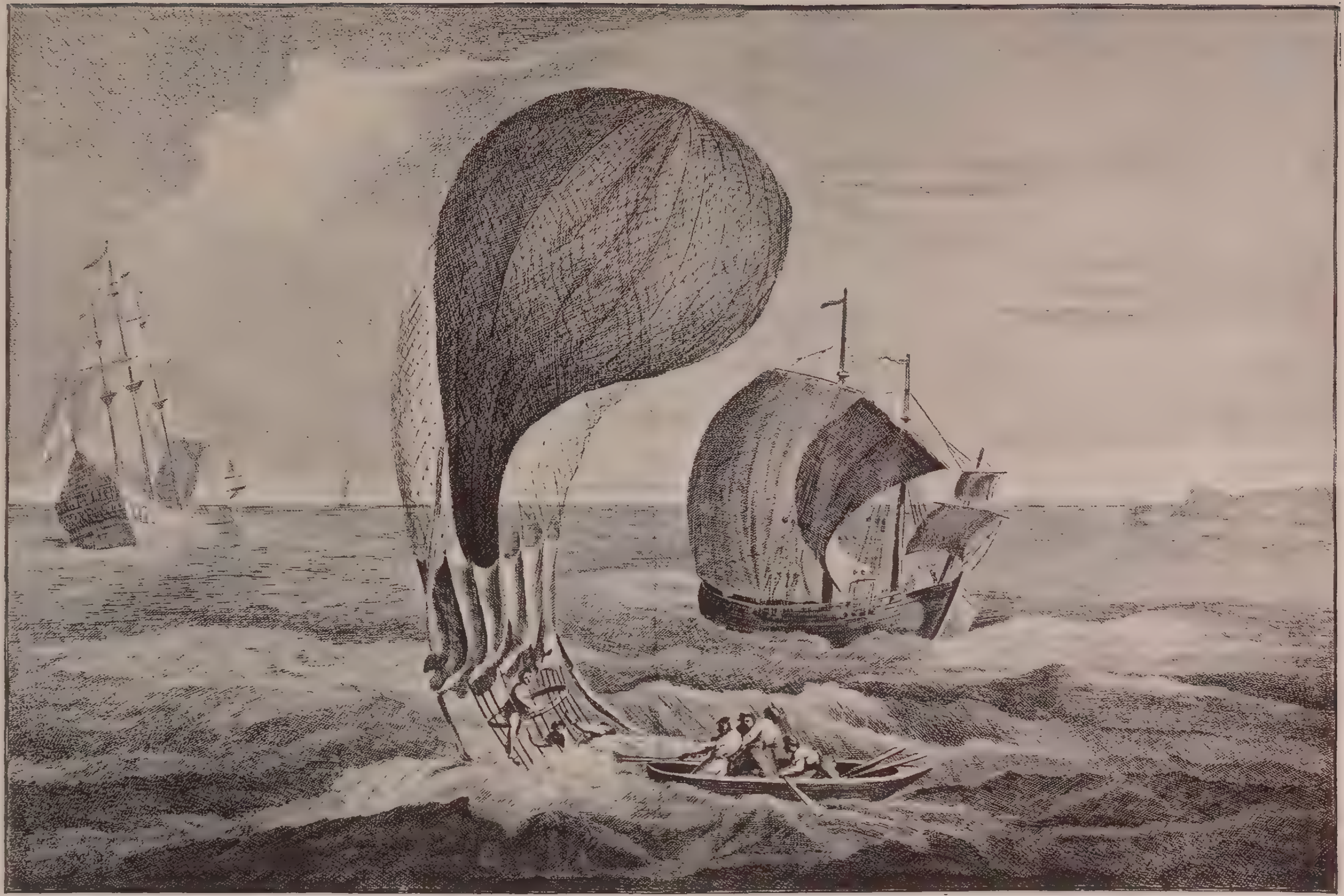


PLATE 67. THE RESCUE OF ZAMBECCARI, ANDREOLI AND GRASSETTI. 1803
(11¾ × 17½ in.)
From a proof before all letters in the possession of Dr. F. J. Poynton

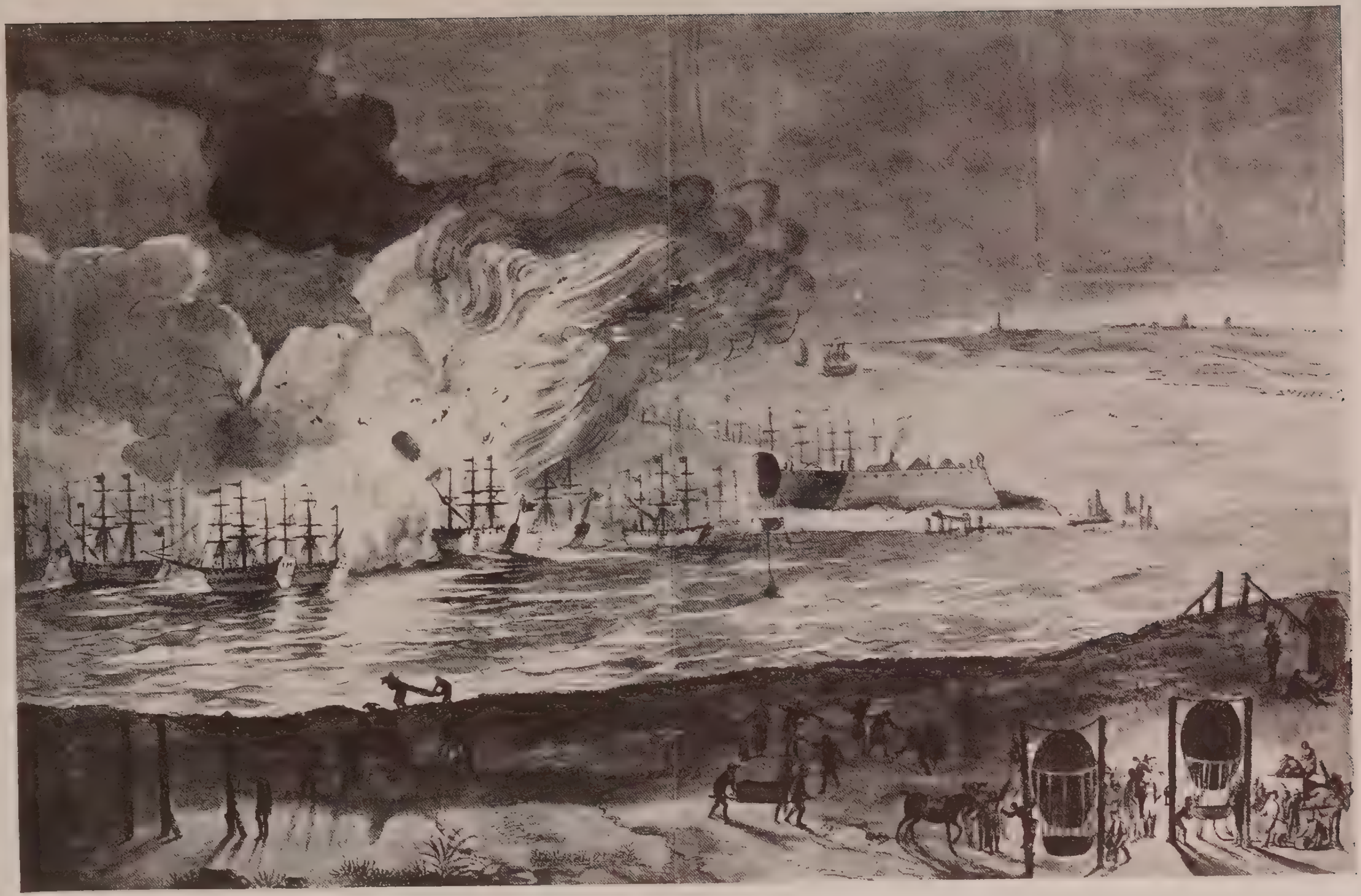


PLATE 69. A NAPOLEONIC PROJECT FOR ATTACKING ENGLAND. *Circa* 1803
(13 × 20½ in.)
From an impression in the Dollfus Collection

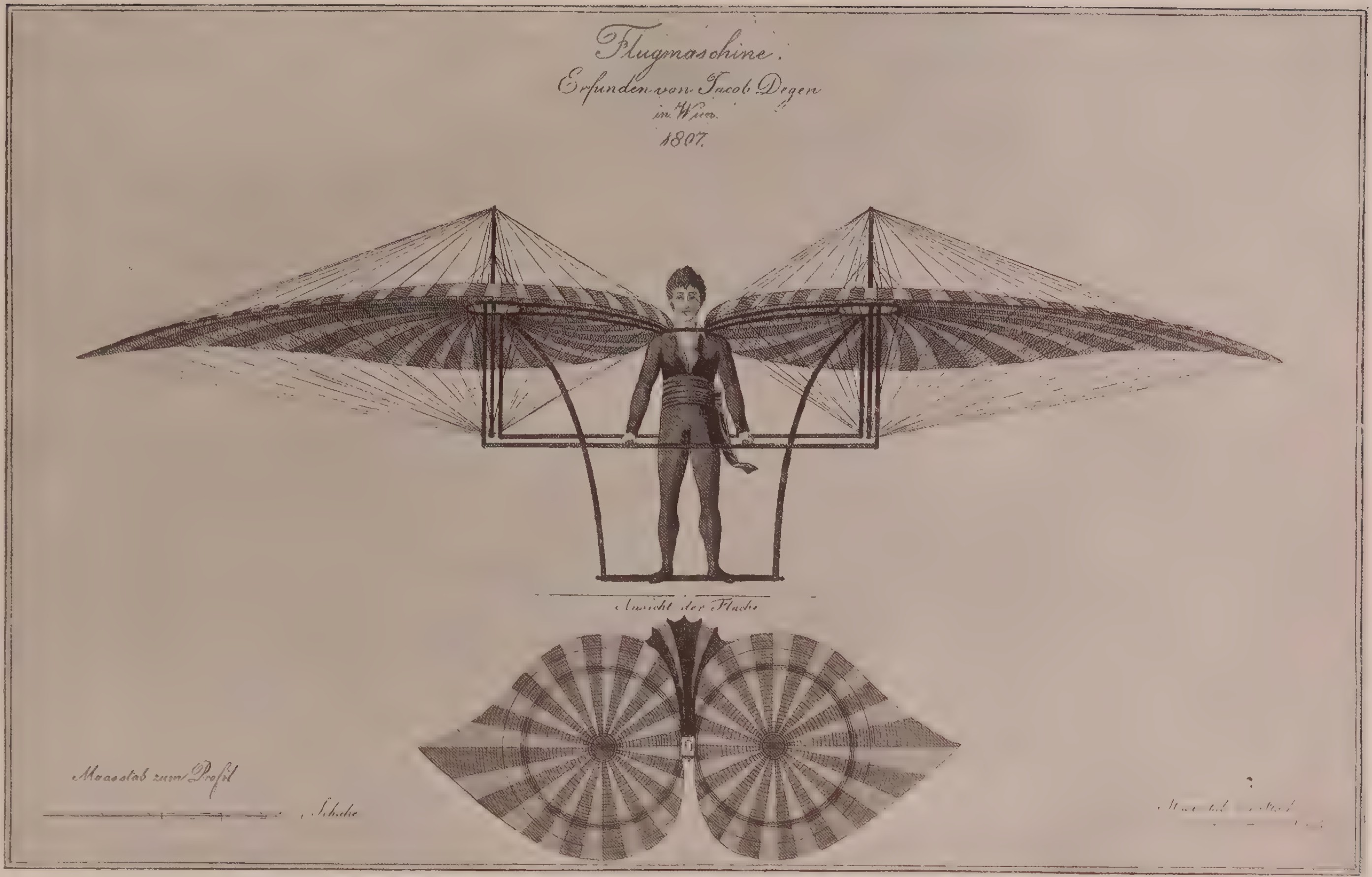


PLATE 70. DEGEN'S FLYING MACHINE. 1807
(10½ × 16¼ in.)
From an impression in the Cuthbert Collection

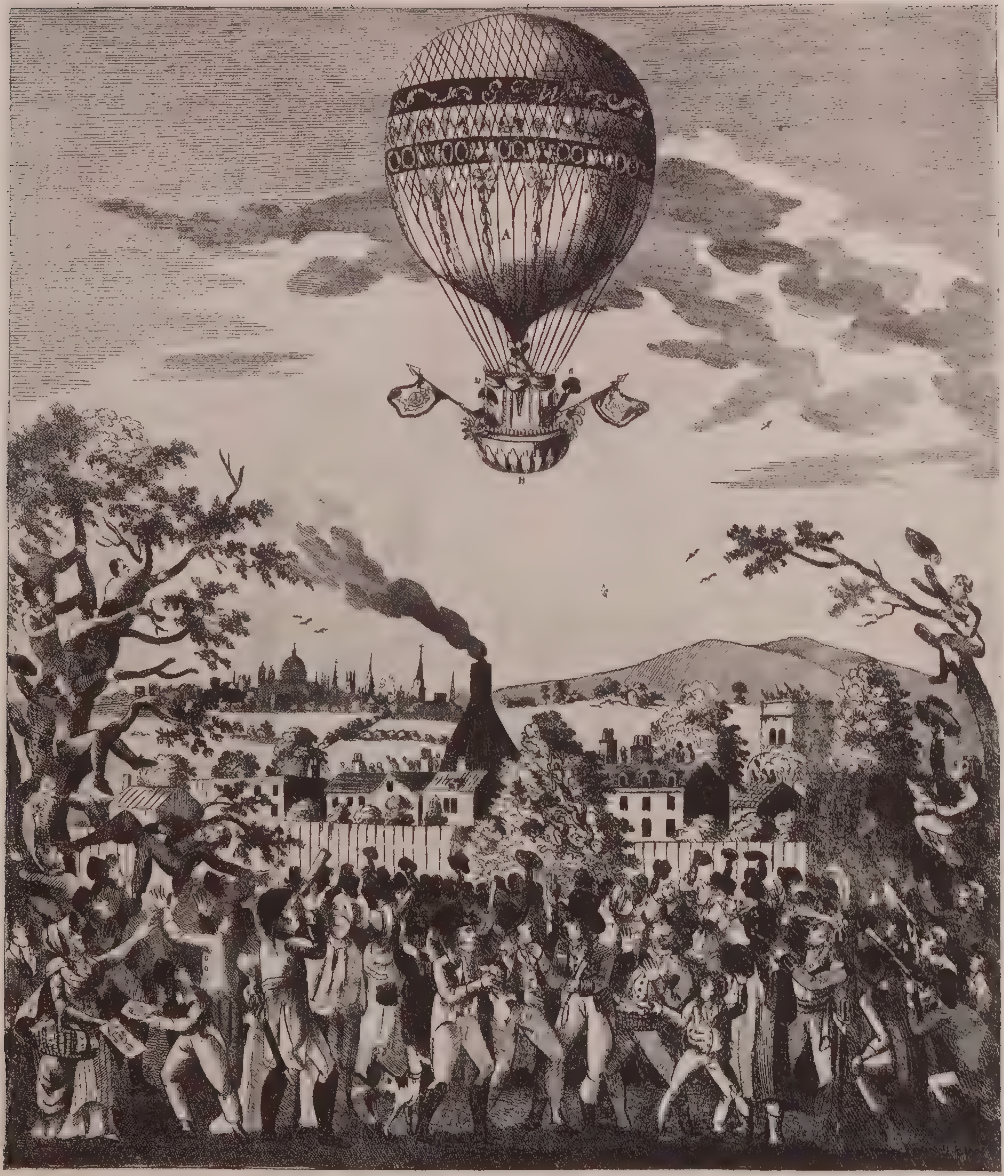


PLATE 72. ASCENT OF JAMES SADLER AND CAPTAIN PAGET FROM HACKNEY. 1811
(16½ × 13 in.)
From an impression in the Cuthbert Collection

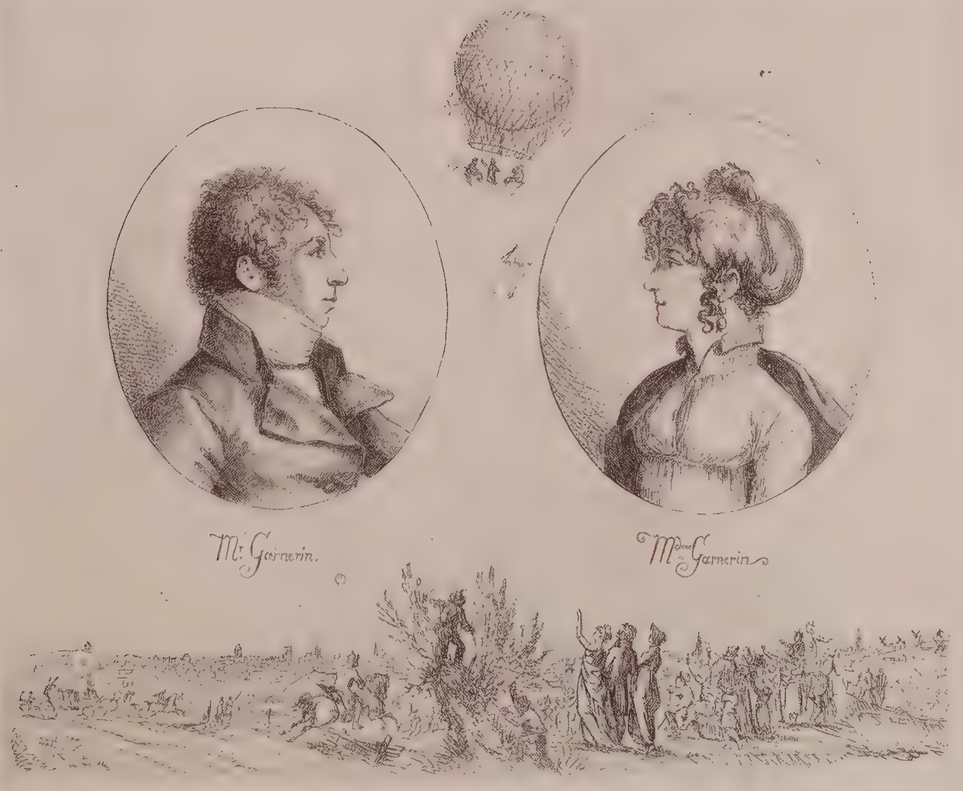


PLATE 73. MONSIEUR AND MADAME GARNERIN
($5\frac{1}{4} \times 6\frac{1}{2}$ in.)
From an impression in the Cuthbert Collection

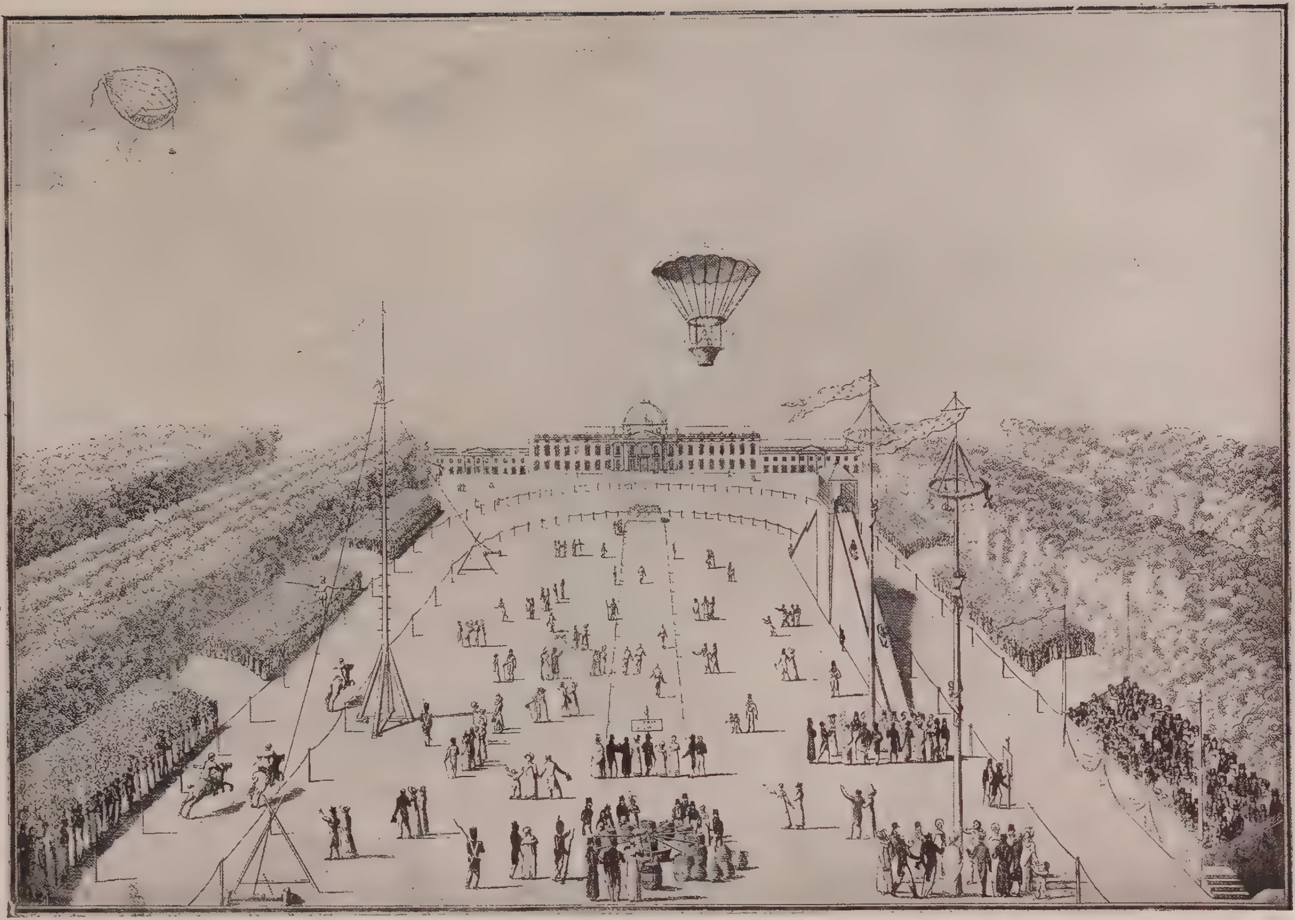


PLATE 74. A PARACHUTE DESCENT BY ELIZA GARNERIN. 1815
(15½ × 22 in.)
From an impression in the Cuthbert Collection

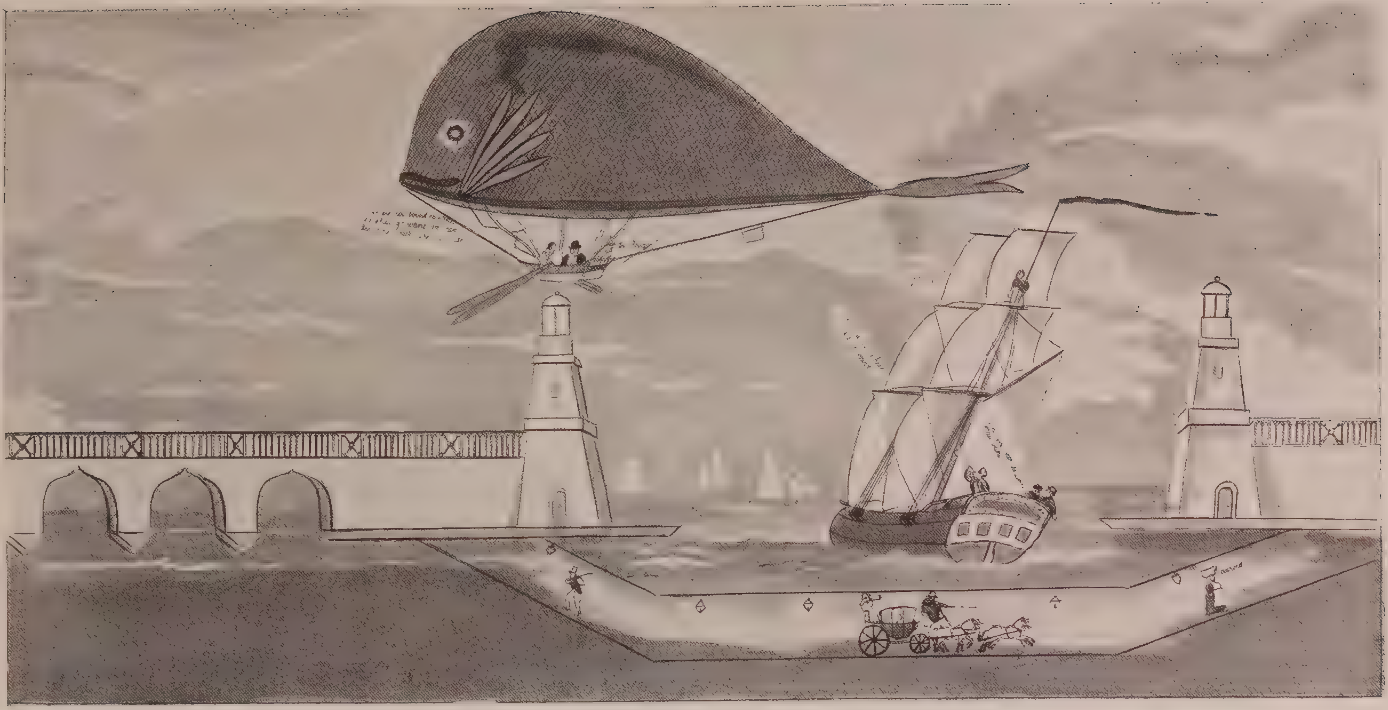


PLATE 75. CARICATURE OF THE PAULLY AND EGG BALLOON. 1816
($6\frac{1}{2} \times 12\frac{3}{4}$ in.)
From an impression in the Cuthbert Collection

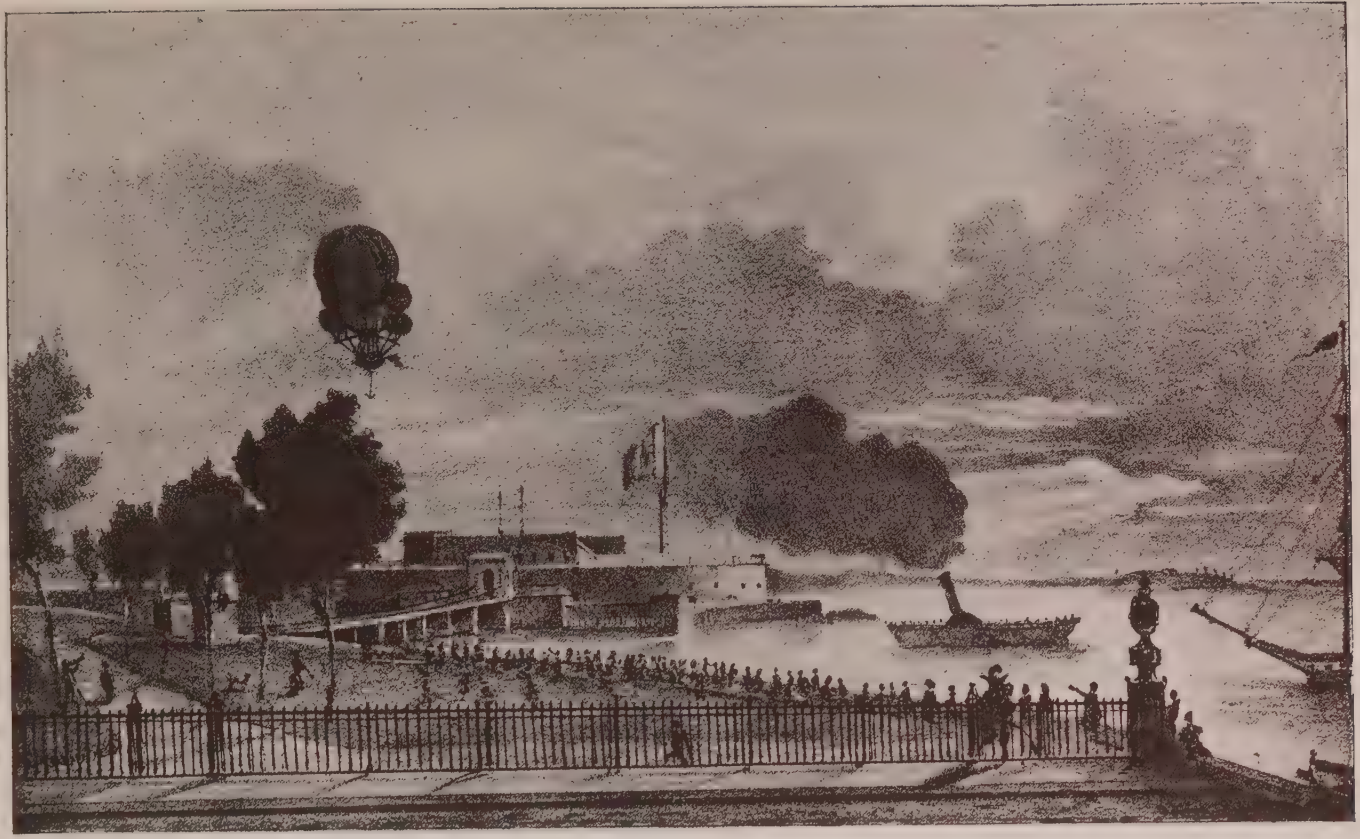


PLATE 76. EUGÈNE ROBERTSON'S ASCENT FROM NEW YORK. 1826
From an impression in the Dollfus Collection

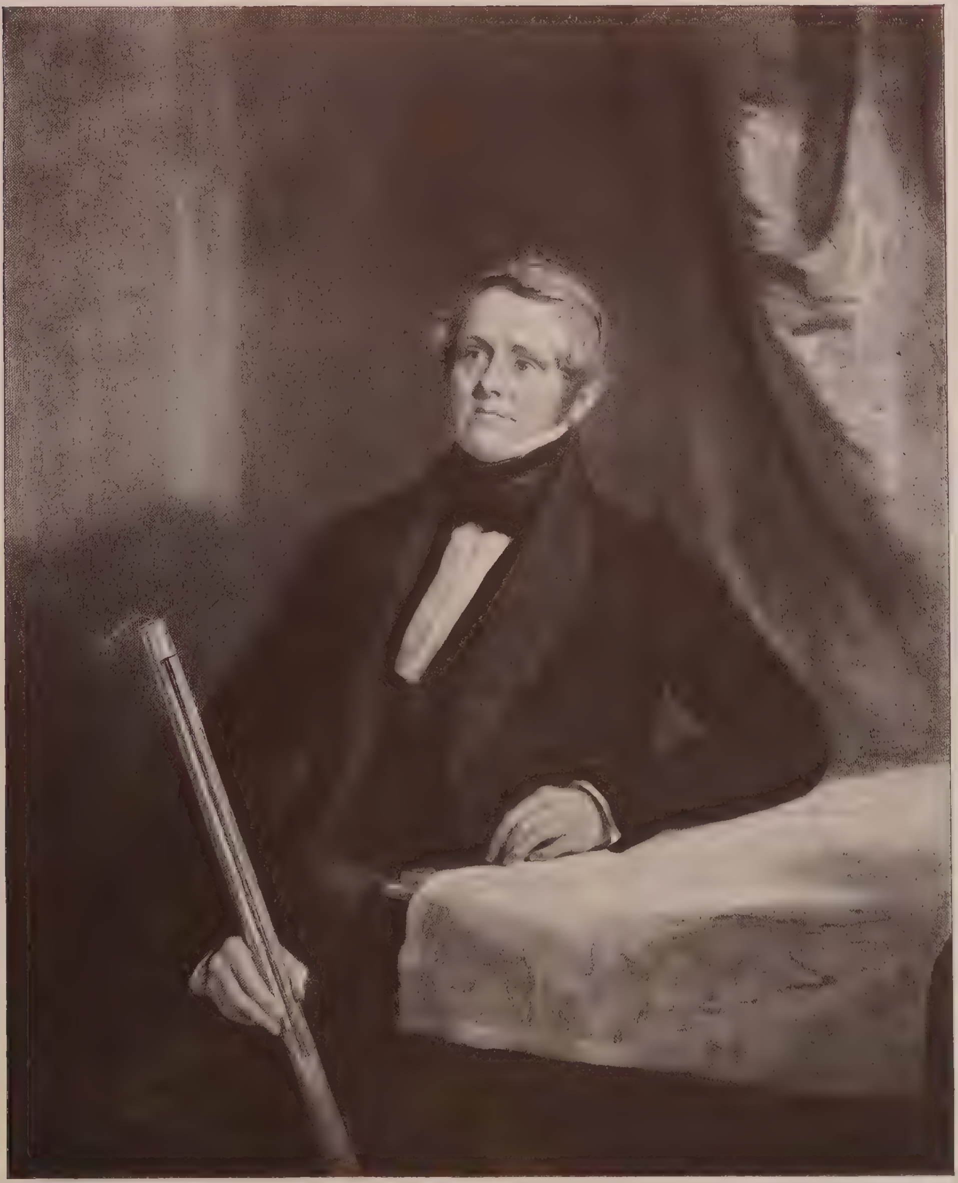


PLATE 77. MR. CHARLES GREEN, THE AERONAUT
(15½ × 12½ in.)
From an impression in the possession of the Author

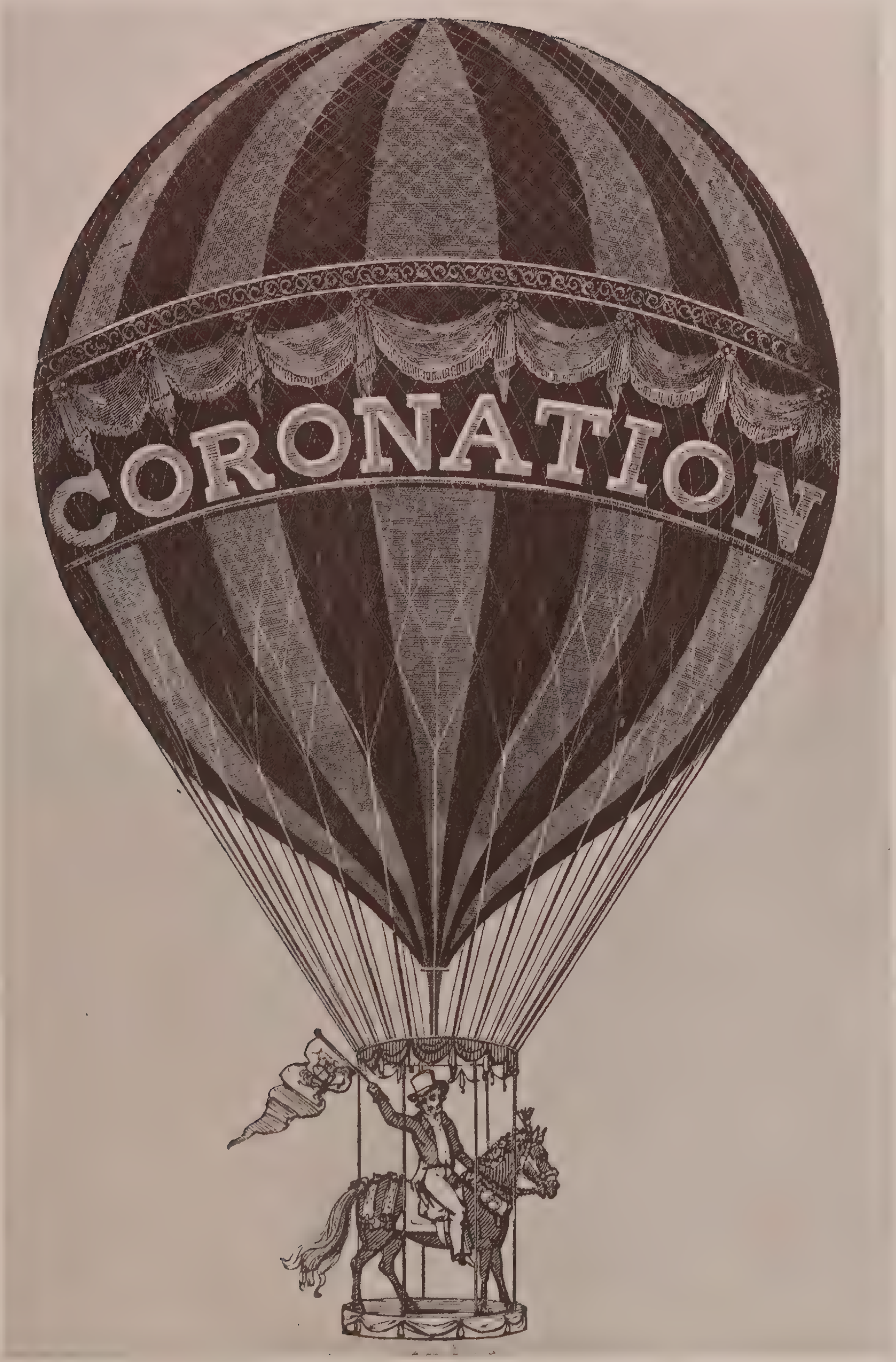


PLATE 78. AN EQUESTRIAN ASCENT BY CHARLES GREEN. 1828
(10¼ × 6¾ in.)
From an impression in the Cuthbert Collection

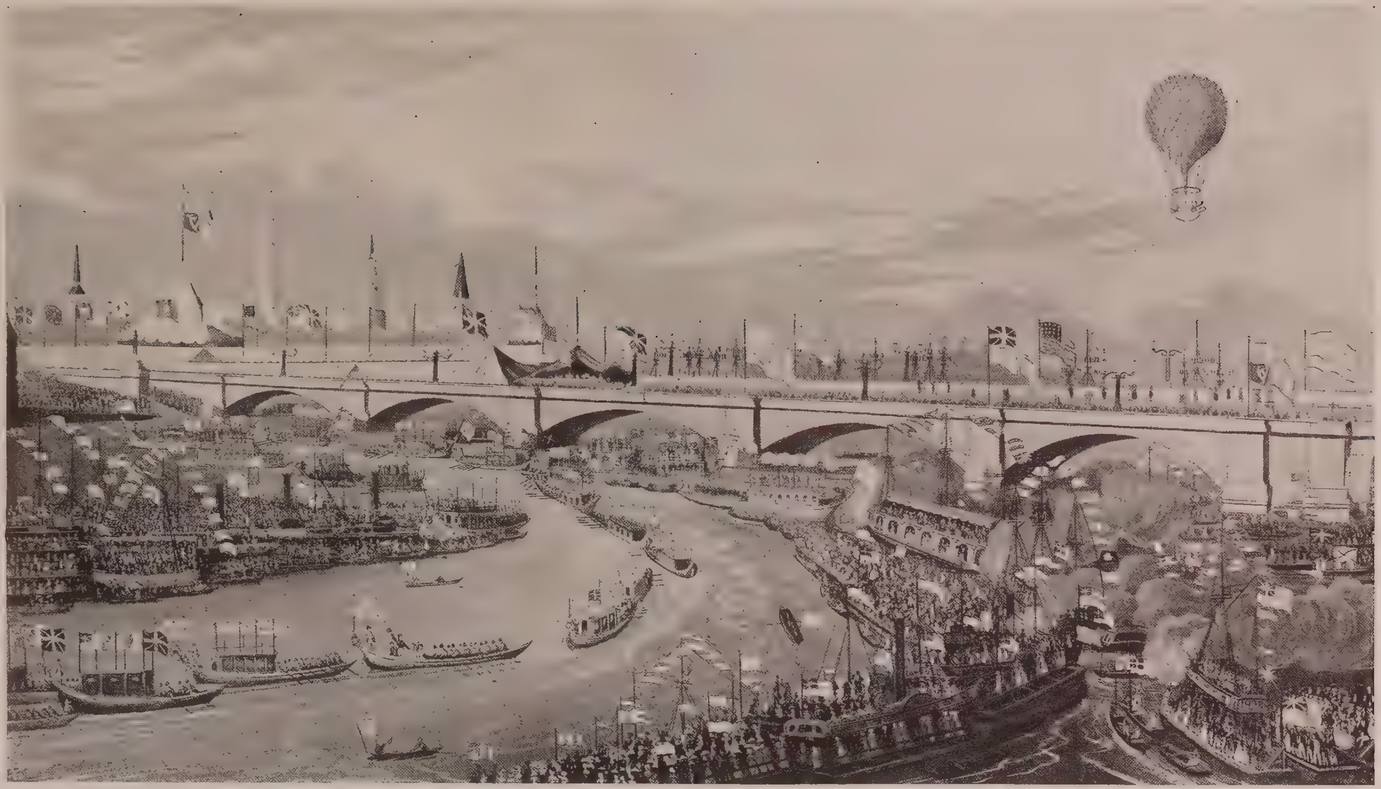


PLATE 79. THE OPENING OF NEW LONDON BRIDGE. 1831
(9¾ × 17 in.)
From an impression in the Cuthbert Collection

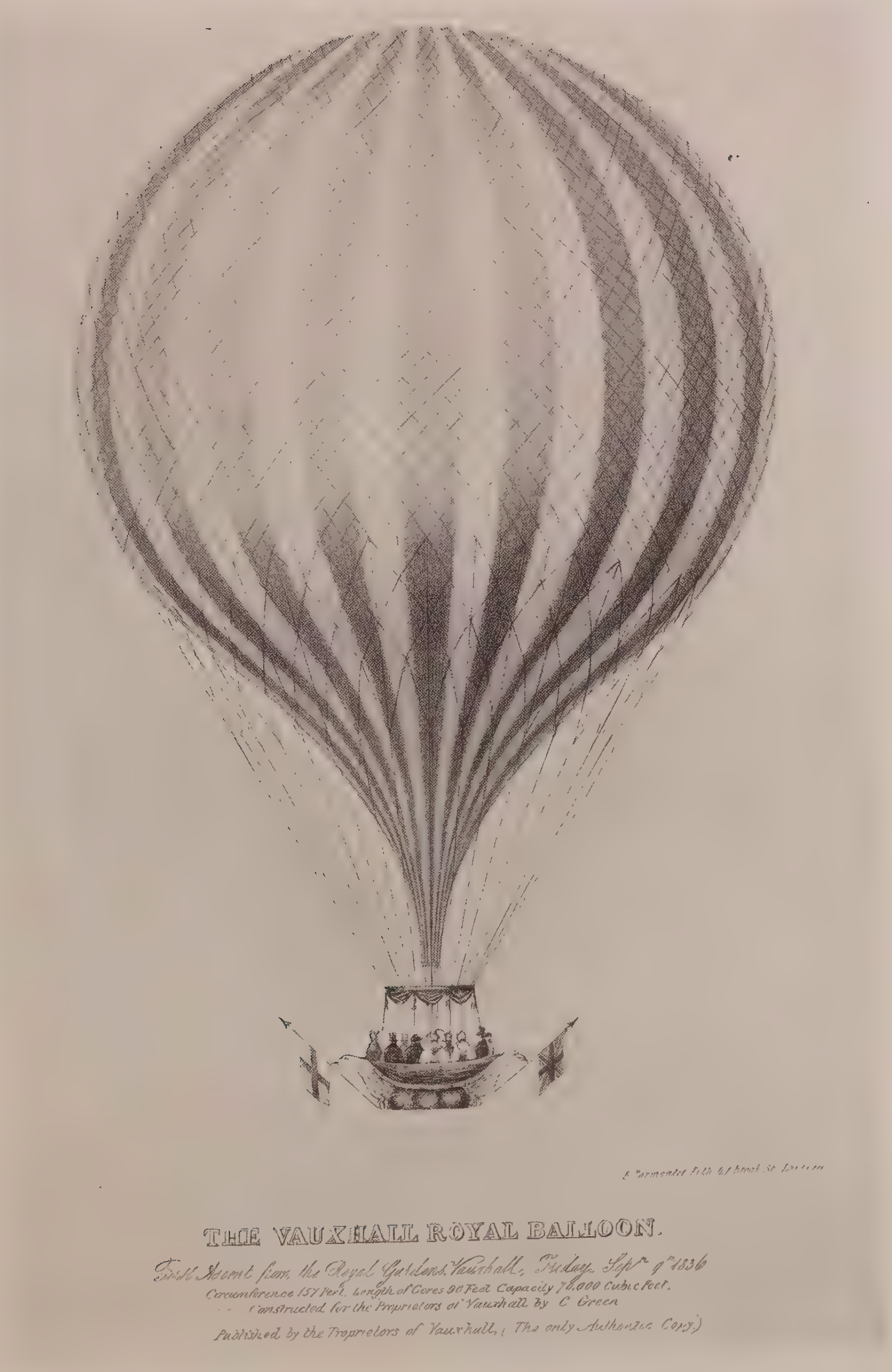

THE VAUXHALL ROYAL BALLOON.
First Ascent from the Royal Gardens Vauxhall, Friday Sepr 9th 1836
Circumference 157 Feet. Length of Cores 90 Feet Capacity 70,000 Cubic Feet.
Constructed for the Proprietors of Vauxhall by C Green
Published by the Proprietors of Vauxhall, (The only Authentic Copy)

PLATE 81. THE VAUXHALL GARDENS BALLOON. 1836
(12 × 8¼ in.)
From an impression in the Cuthbert Collection

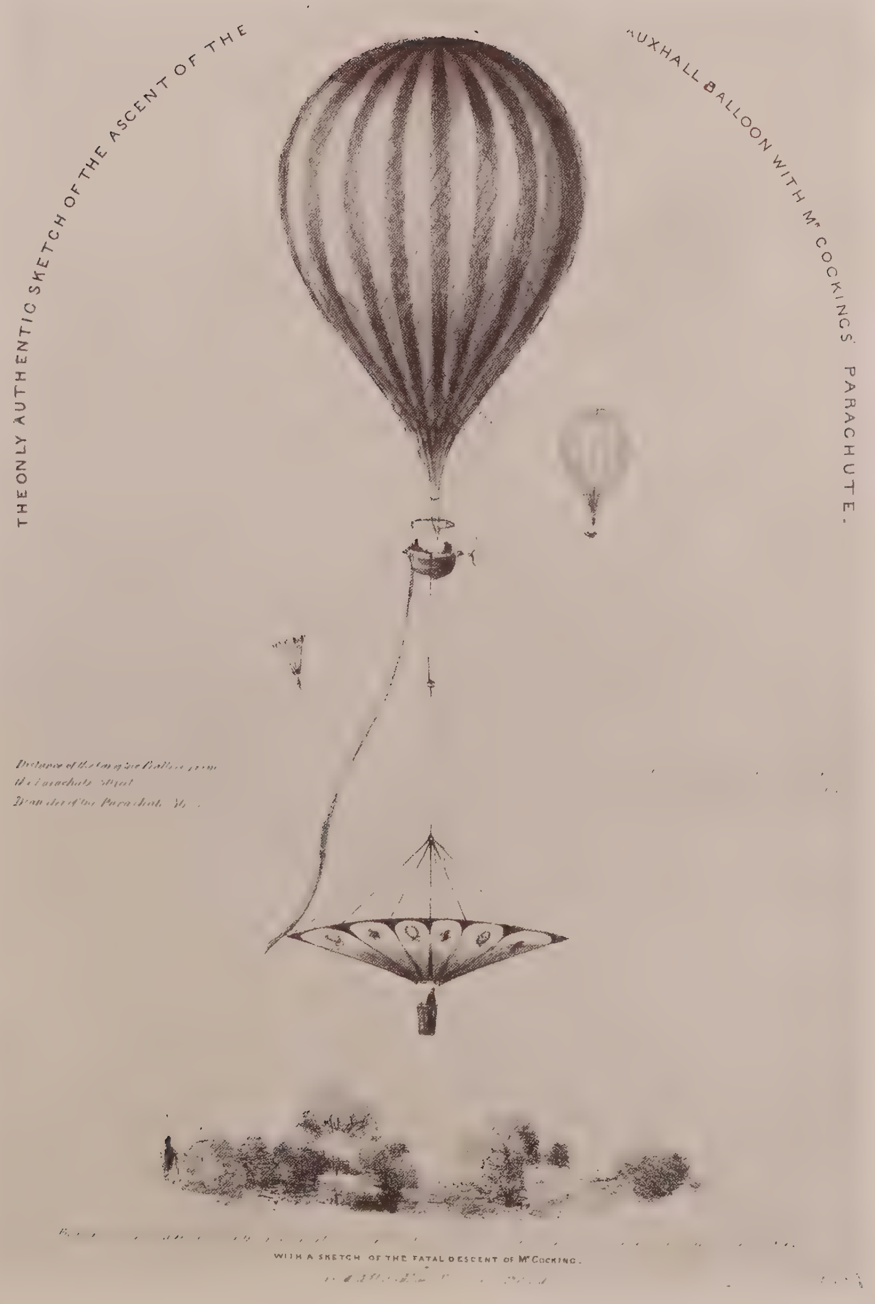

THE ONLY AUTHENTIC SKETCH OF THE ASCENT OF THE
VAUXHALL BALLOON WITH Mr COCKINGS' PARACHUTE.
Distance of the [illegible] Balloon from the Parachute [illegible]
Diameter of the Parachute [illegible]
WITH A SKETCH OF THE FATAL DESCENT OF Mr COCKING.

PLATE 82. ROBERT COCKING'S PARACHUTE. 1837
From an impression at Chalais Meudon

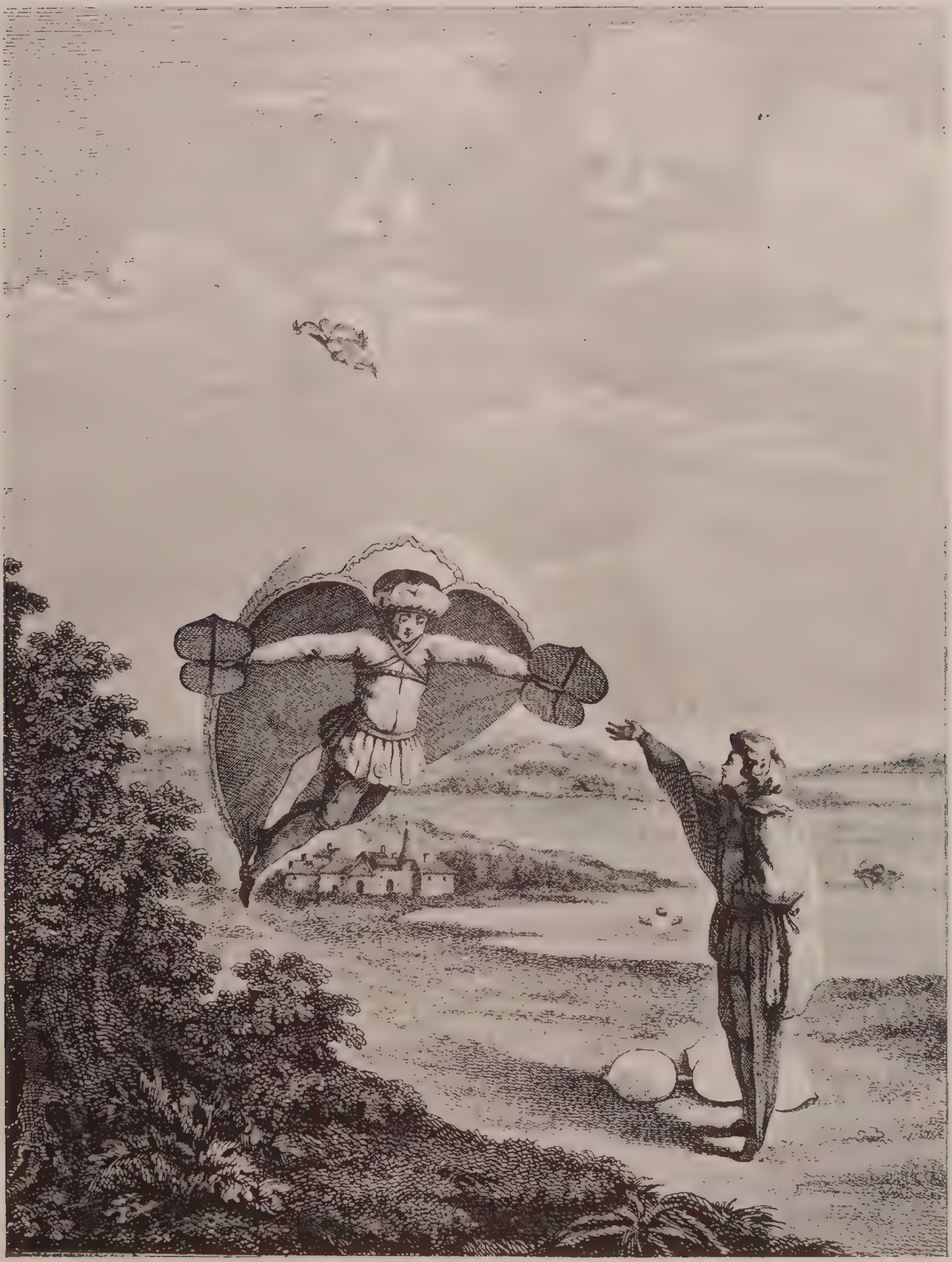


PLATE 84. A FORECAST OF THE GLIDER
From an impression in the Dollfus Collection

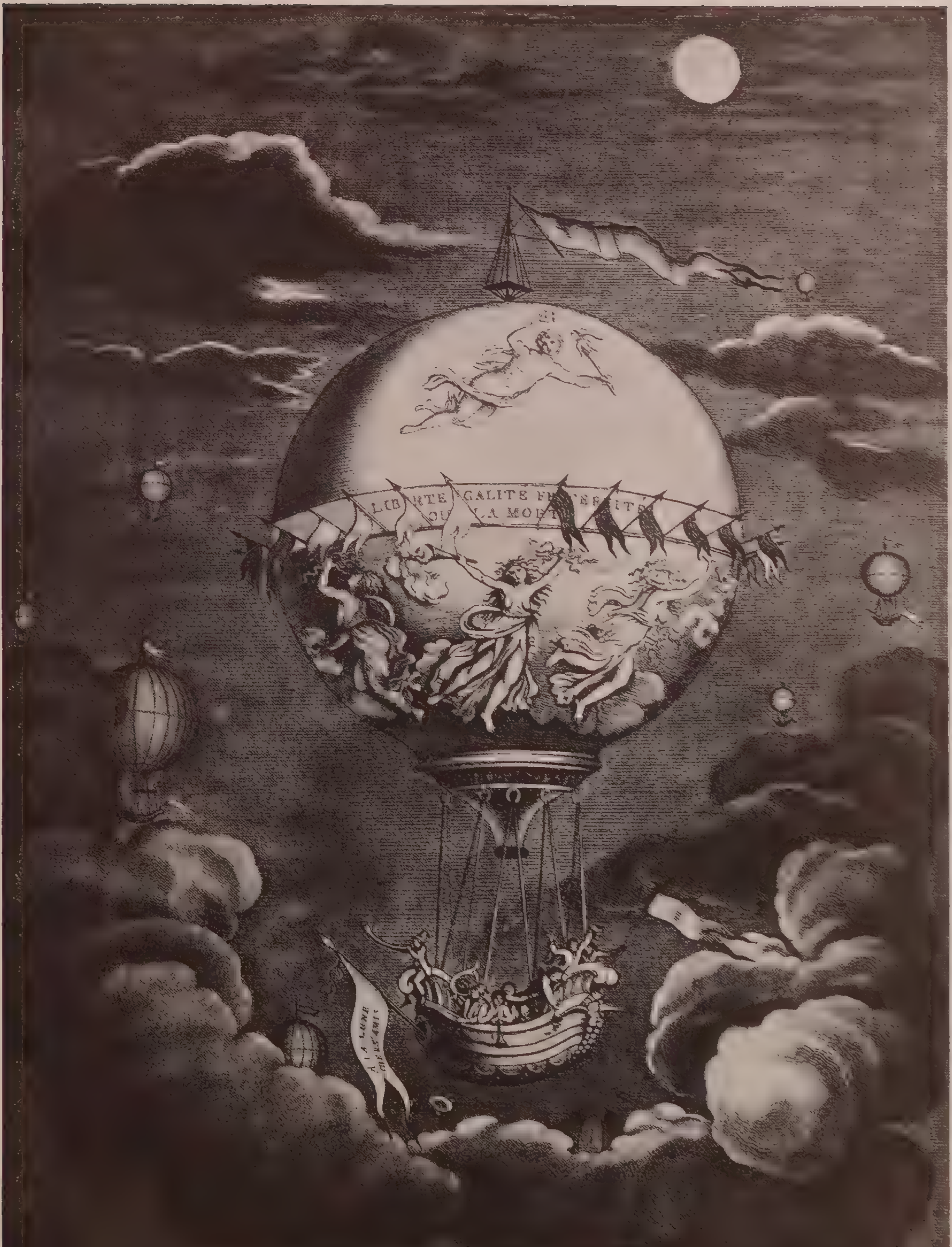


PLATE 85. A FRENCH REVOLUTIONARY CARICATURE. *Circa* 1790
From an impression in the Dollfus Collection

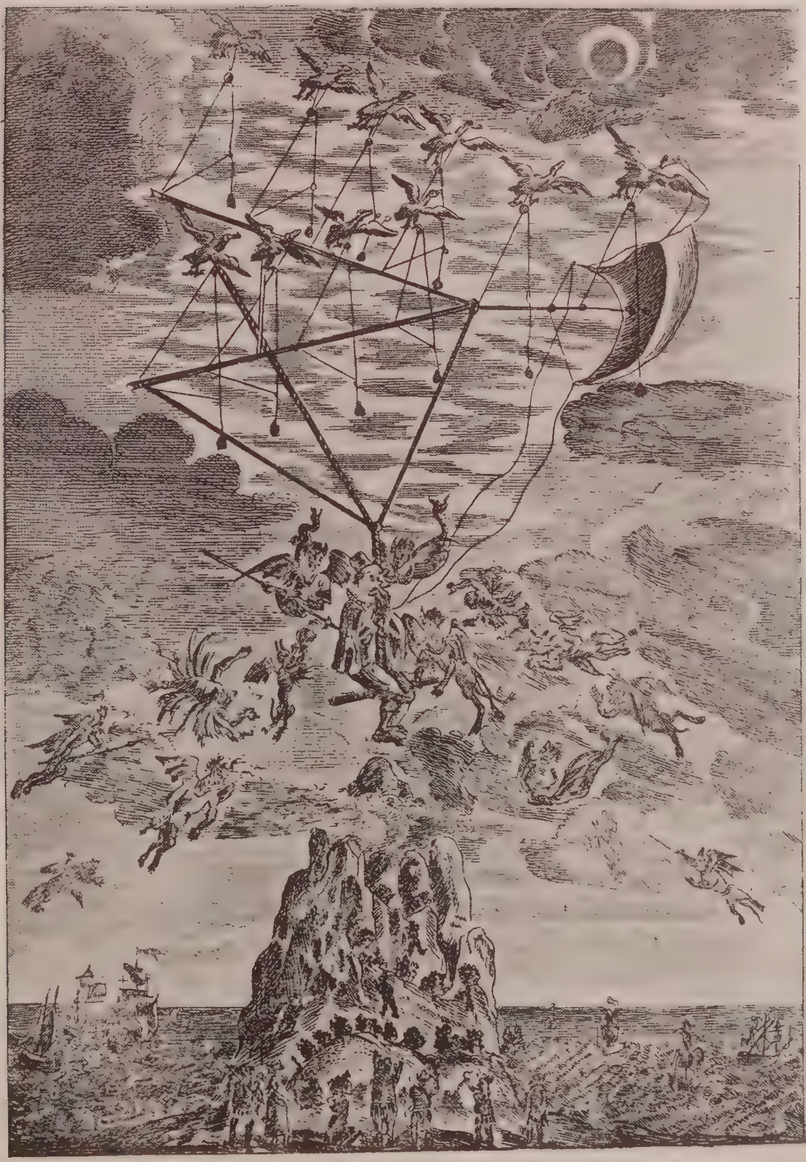
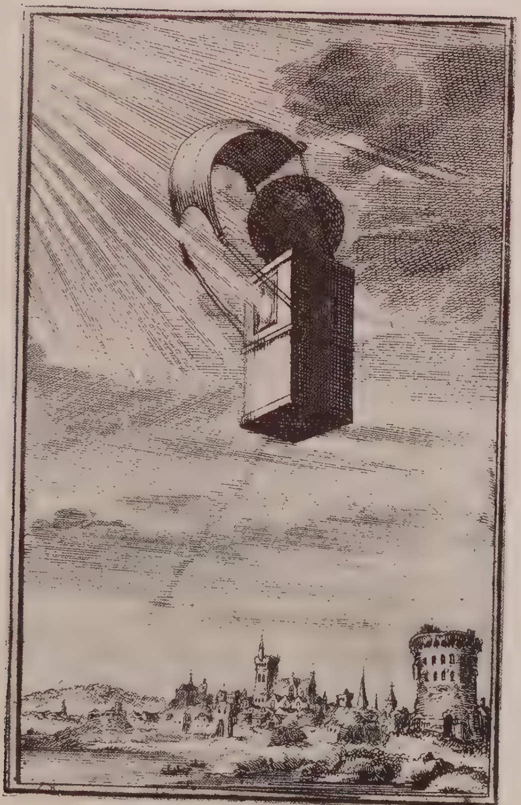
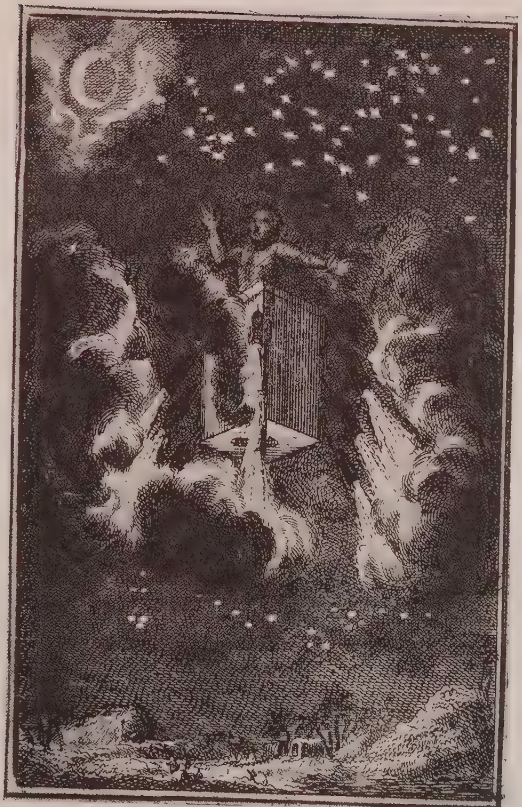


PLATE 86. ILLUSTRATION FROM "THE STRANGE VOYAGE AND ADVENTURES OF DOMINGO GONZALES TO THE WORLD IN THE MOON"
(*Second Edition.* 1786)
($6\frac{1}{2} \times 4\frac{1}{2}$ in.)



THE VOYAGE TO THE SUN
(4½ × 2¾ in.)



THE VOYAGE TO THE MOON
(4½ × 2¾ in.)

PLATE 87. TWO ILLUSTRATIONS FROM "LES ŒUVRES DIVERSES DE MONSIEUR CYRANO DE BERGERAC." 2 VOLS. (*Amsterdam*, 1699)

DELECTANDO PARITERQUE DOCENDO